SUPREME COURT OF THE UNITED STATES.

OCTOBER TERM, 1919.

No. 17, Original.

THE STATE OF NORTH DAKOTA, COMPLAINANT,

vs.

THE STATE OF MINNESOTA.

IN EQUITY.

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1 At the Capitol of the United States, in the City of Washington and the District of Columbia, being the present seat of the National Government of the United States, on the second Monday of October (being the ninth day of the same month), in the year of our Lord one thousand nine hundred and sixteen, and of the Independence of the United States the one hundred and forty-first, the Supreme Court of the United States met agreeably to law.

And on the same day, to-wit, on the ninth day of October, A. D. 1916, the following entry appears of record, viz:

2 —, Original.

STATE OF NORTH DAKOTA, Complainant,

vs.

STATE OF MINNESOTA.

Mr. M. H. Boutelle of counsel for the Complainant, submitted to the consideration of the Court a motion for leave to file a bill of Complaint in this cause.

October 9th, 1916.

And afterwards, to wit, on the 16th day of October, A. D. 1916, the following entry appears of record, viz:

3 —, Original.

STATE OF NORTH DAKOTA, Complainant,

vs.

STATE OF MINNESOTA.

On consideration of the motion for leave to file a bill of complaint herein, it is now here ordered by the Court that the said motion be and the same is hereby granted and that process issue returnable on the first Monday in March next.

October 16th, 1916.

Which said motion and Bill of Complaint are in words and figures following, viz:

4 Supreme Court of the United States, October Term, 1916.

THE STATE OF NORTH DAKOTA, Complainant,

vs.

THE STATE OF MINNESOTA, Defendant.

Now comes the State of North Dakota, complainant in the above entitled matter, by Henry J. Linde, Attorney General of said State, and moves the Court for leave to file the Bill of Complaint herewith exhibited in a controversy which has arisen between the said State of North Dakota and the State of Minnesota growing out of the trespass and other acts alleged in said Bill and that proper process may issue thereon, notifying the defendant of the filing of such Bill and requiring the defendant to appear and defend the same.

HENRY J. LINDE,
Attorney General for the State of North Dakota.

M. H. BOUTELLE,
JOHN LIND,
I. C. PINKNEY,
Solicitors and of Counsel for Complainant.

5 *Brief in Support of Motion for Leave to File.*

The present bill is exhibited in a suit of equitable nature, invoking the original jurisdiction of this court, brought by the State of North Dakota, as Complainant, against theState of Minnesota, as Defendant.

The gravamen of the charge alleged by the Bill is the commission of a trespass by the defendant state on the domain of complainant under circumstances that have already been productive of irreparable damage and under conditions which, if continued, will result in a continuing trespass and invasion with consequent loss of a character not susceptible of adequate reparation by any pecuniary recovery.

Briefly summarized, the allegations of the Bill disclose that the State of Minnesota, for the purpose of draining and reclaiming large areas within that state, has, by general legislation and by specific appropriations for the purpose, authorized and constructed a system of state ditches and canals that have diverted and accelerated the discharge of the waters accumulating in the interior of that state into a water course constituting the boundary line between Minnesota and North Dakota, greatly in excess of the capacity of that water course to carry off and discharge.

6 The result, as disclosed by the Bill, has been the overflow and inundation of thousands of acres of valuable agricultural

land within the domain of the complainant state with the consequent destruction of that land for the ordinary purposes of husbandry.

The physical conditions are disclosed to be such that if the artificial system of canals and ditches constructed by Minnesota are maintained, periodic inundation of the area in question in North Dakota will be inevitable and the loss occasioned thereby, permanent. The losses already incurred are shown to be approximately one million dollars and this figure represents a relatively small proportion of the damage which will inevitably be sustained from a perpetuation of the conditions complained of.

The diversion of the waters by means of the artificial system complained of is alleged to have wholly over-taxed the capacity of the natural boundary water course between the states; to have drained into that water course non-tributary and vastly increased volumes of water and to have greatly accelerated the time of flowage in which the portion of the waters ordinarily finding their outlet therein, reach the said boundary channel.

7 In addition to the loss incident to the overflowage of the area indicated, the Bill discloses that the inundation and inability of the natural boundary channel to provide for the discharge of the artificially added burden, results in creating a vast reservoir of stagnant water within the area of complainant state, constituting a menace to the health of its citizens in the area affected and those residing in the vicinity thereof and therefore constituting a nuisance within the meaning of the law.

By reference to the Preamble of the General Law of Minnesota (recited in full in the Bill), under the authority of which the principal of the artificial channels was constructed, it will appear that as a result of certain preliminary construction of similar character and similarly authorized within that state, a large area therein had suffered inundation, practically destroying it for agricultural purposes and resulting, as recited in such Preamble, in creating a nuisance and menace to the health of residents in the region affected.

As also recited in that Preamble with a view to obviating the unfortunate conditions indicated, it was necessary to transfer the burden. The law itself accordingly authorized extending the artificial construction to the boundary water course between the states. The result was, as already indicated, that the area thus affected within

8 Minnesota was relieved by casting the accumulated waters thereof, practically in a body, on to the domain of the complainant state.

Without further discussion of the details fully disclosed by the allegations of the Bill, the resulting situation may be summarized in the statement that Minnesota has effected its own relief by invasion and trespass on the area of complainant.

The lands affected within the area of North Dakota are alleged to have been occupied and improved for the ordinary purposes of agriculture and husbandry for many years and to have been amongst the most valuable for that purpose of any lands within

that state. It is further shown that they were devoted to the use last indicated at the time of the trespass complained of. Following the trespass, it is disclosed that the lands have been rendered practically useless as a result thereof and that this condition will be perpetual unless defendant is restrained and enjoined from maintaining and continuing the artificial conditions responsible therefor.

The complainant state has therefore exhibited its Bill in this original proceeding, seeking appropriate equitable relief, enjoining the continuance of the trespass and for the recovery of the damages resulting therefrom.

As the matters alleged present a controversy between two
9 sovereign states, the proceeding falls within the original jurisdiction of this court as provided by the second section of Article Third of the Constitution and the original Judiciary Act of 1789, carried forward as Section 687 of the United States Revised Statutes.

The propriety of the present form of proceeding is clearly indicated in the following recent decisions of this court.

Missouri v. Illinois, 180 U. S. 208.
Kansas v. Colorado, 185 U. S. 125.
Georgia v. Tennessee Copper Co., 206 U. S. 230.

In the Kansas-Colorado case, supra, the doctrine was clearly enunciated that with respect to invasions of the domain of a state resulting in loss to its citizens, the state itself was the proper party to seek redress, occupying as it did, the position of parens patriæ, etc., of all or a considerable portion of its citizens whose interests were affected.

In Georgia v. Tennessee, supra, the resulting situation was clearly summarized in the following language:

"This is a suit by a state for an injury to it in its capacity of *quasi-sovereignty.* In that capacity the state has an interest *independent of and behind the titles of its citizens in all the earth and air within its domain.* * * * When the states by their
10 union made the forceable abatement of outside nuisances impossible to each, they did not thereby agree to submit to whatever might be done. They did not renounce the possibility of making reasonable demands on the ground of their still remaining *quasi-sovereign* interests, *and the alternative to force is a suit in this court.* (Italics ours.)

In presenting this brief outline, we have not deemed it either necessary or appropriate to enter upon any extended discussion of the legal questions going to the merits of the controversy as these will be more appropriately for consideration at a later stage of the proceedings when the defendant shall have entered its appearance herein.

In accordance with the rule stated in Georgia v. Grant, 6 Wall., 241, the motion for leave to file is presented ex parte.

It is respectfully submitted on behalf of the complainant the mo-

tion should be granted and the defendant required to appear and defend.

Respectfully submitted,

HENRY J. LINDE,
Attorney General of the State of North Dakota.

M. H. BOUTELLE,
JOHN LIND,
I. C. PINKNEY,
Solicitors and of Counsel for Complainant.

Office Supreme Court, U. S. Filed Nov. 9, 1916. James D. Maher, Clerk.

11 Supreme Court of the United States.

THE STATE OF NORTH DAKOTA, Complainant,

vs.

THE STATE OF MINNESOTA, Defendant.

To the Honorable the Justices of the Supreme Court of the United States:

Your orator, the State of North Dakota, by Henry J. Linde, its Attorney General, duly appointed and commissioned by law, brings this its Bill of Complaint by direction of the Governor of said state against the State of Minnesota and thereupon complains and alleges as follows:

First. That your orator, the State of North Dakota, was and is duly and regularly organized and admitted as one of the States of the United States under the Act of Congress of February 22nd, 1889. That the defendant, the State of Minnesota was and is duly and regularly organized and admitted as one of the States of the United States under an Act of Congress of March 3rd, 1849.

12 Second. That a controversy has arisen between the State of North Dakota and the State of Minnesota in respect to the trespasses and other unlawful acts of the last named State, hereinafter and in this Bill more fully alleged, within the original civil and equitable jurisdiction of this court.

Third. That the State of Minnesota is bounded on the west by the States of North Dakota and South Dakota; that the boundary between the States of North Dakota and Minnesota in the section involved in this proceeding, is a line extending through Lake Traverse, located immediately south of the southerly line of the State of North Dakota and thence following in a general northerly direction, the main channel of the Bois de Sioux River. That the general character of the territory along and on both sides of said boundary line, at the point here in controversy, is that of a practically level prairie formation, sloping gradually toward the north with a fall of

approximately one (1) foot to the mile, and having an average mesne elevation of nine hundred and seventy (970) feet above sea level.

Fourth. That the above described Lake Traverse was and is, under ordinary and natural conditions, a low, shallow body of water, a large part of whose area was essentially a marsh, the waters
13 thereof having a mesne surface elevation of nine hundred and seventy (970) feet above the sea level. That the Bois de Sioux River was and is the outlet of said lake, the direction of flow of the waters of both said lake and river being toward the north. That at all times previously to the commission of the unlawful acts hereinafter alleged, the said last named river, between said lake and the mouth of the Rabbit river, through the section here in controversy was a narrow, shallow stream with relatively insignificant depth of channel and without well defined banks, its width varying at different seasons of the year according to the stage of water therein; that except for periods of abnormally high stages of water, the depth of the channel of said river never exceeded a few feet and its width was limited and varied from one (1) to four (4) rods; that during the stages of high water due to spring freshets, etc., the level of its waters was raised above its banks, resulting in the overflow of a limited area along its course but that such overflow was for such comparatively brief periods in point of time and of so limited character in extent as to cause no serious or permanent damage or injury to any of the lands bordering the same and situated within the State of North Dakota.

Fifth. That the prairie formation, in the depression whereof the said Lake Traverse is located and through which the said
14 Bois de Sioux River runs, as aforesaid, extends in a general northerly and southerly direction on both sides of said last named river in the States of North Dakota and Minnesota. That on the west of said river, such prairie formation extends for many miles within the State of North Dakota, with a general slope toward said river and toward the north, the mesne elevation thereof, in the section here involved, being only slightly above the level of the water of said river at the latter's normal stage. That on the east of said river, such prairie formation within the State of Minnesota, similarly parallels the course of the river for many miles, with a width east and west of approximately twenty (20) miles. That the general slope of the entire area last mentioned within the State of Minnesota, is toward said lake and river and toward the north, and the average elevation of the easterly line thereof, approximately forty (40) feet above the level of said lake and river. That for convenience the area last described within the State of Minnesota, will hereafter be referred to and termed as the "prairie zone."

Sixth. That immediately east of such prairie zone in the State of Minnesota, paralleling that zone north and south for many miles and with an average width east and west of approximately
15 ten (10) miles, lays a higher area or region of rough, broken, hilly country interspersed with numerous lakes, rivers,

streams and other natural water courses, having an average elevation of approximately twelve hundred (1,200) feet above sea level. That the general slope of the northerly portion of said area is to the south and west, and that of the southerly portion thereof, north and west, toward the said Lake Traverse and the Bois de Sioux River. That the natural flow and drainage of the entire waters of said area is toward and into said lake and river, the latter furnishing the outlet therefor; all such waters in reaching such outlet, passing or flowing over and through the prairie zone above described. That for purpose of convenience the area last hereinabove described will hereafter be referred to and termed as the "moraine zone."

Seventh. That owing to the natural conformation of said moraine zone, all of the waters thereof, both surface and those following the natural and well defined water courses therein and whether originating in the northern or southern portion thereof, had, under normal and natural conditions, a common confluence in the level and comparatively low area of the prairie zone located at or near the eastern margin thereof, in and around Township One Hundred
16 Twenty-seven (127), north of Range Forty-five (45) west, at which point, following spring freshets and excessive rainfalls, such waters were accumulated and collected in great volume, overflowing and inundating an area of upwards of forty (40) square miles. That the area of such common confluence and overflow will, for convenience, be hereinafter referred to and termed the "delta zone."

Eighth. That as a result of said overflow last hereinabove alleged, many thousands of acres of land in the State of Minnesota comprising the area of said delta zone and vicinity were, previously to the construction of the system of artificial canals or ditches hereinafter described, more or less permanently inundated or saturated, a large part of such area comprising marsh or swamp lands.

Ninth. That the accumulated waters of said delta zone under the normal and natural conditions existing previously to the construction of the system of artificial canals or ditches hereinafter described, found their outlet to Lake Traverse and the Bois de Sioux River through two main natural depressions or channels, extending over and through said prairie zone and known respectively as the Mustinka and Rabbit Rivers. That the Mustinka River has two main branches, one rising in the northern part of the
17 said moraine zone and flowing south and west, and the other rising in the southern portion of said moraine zone and flowing north and west, these branches having a point of confluence in said delta zone where the main river runs in a general southerly and westerly direction through said delta zone and finds its outlet in Lake Traverse. That the Rabbit River has its source in said delta zone and runs in a general northerly and westerly direction having its outlet in the Bois de Sioux River. That the distance between the outlets of said two rivers, north and south, is approximately twenty-five (25) miles. That the Bois de Sioux River, north of the point of confluence with the waters of the said Rabbit River,

is both wider and deeper, with high banks that are not subject to overflow, and has considerably greater fall, than south of such point of confluence and between it and the source of said river in Lake Traverse.

Tenth. That under normal and natural conditions, existing as aforesaid, the said Mustinka River was a narrow, shallow stream with no appreciable depth of channel and without well defined banks, following an irregular and sinuous course over and through said prairie zone to its outlet. That owing to the relatively flat and level character of the area traversed in its course, as well
18 as its limited fall, the natural flow of the waters therein was slow and sluggish with a barely perceptible current. That the elevation of the said Rabbit River at its source in the delta zone was somewhat higher than that of the Mustinka River; that its channel was more clearly defined and its fall toward the Bois de Sioux River greater. That by reason of the natural conditions last stated, at ordinary stages, a great part of the waters accumulated and collected in said delta zone, as aforesaid, found their outlet through the Mustinka River, but at higher stages, the larger portion of such waters found their outlet and flowed through the Rabbit River and thence, as stated, into the Bois de Sioux. That the Rabbit River, under normal conditions constituted an overflow channel for the accumulated waters of said delta zone and an outlet, as aforesaid, for the larger portion thereof.

Eleventh. That the area of the State of Minnesota embraced and comprised in the several above described zones is upwards of seven hundred fifty (750) square miles, all whereof constituted and was and is commonly known as the Mustinka River Watershed. That under normal and natural conditions independent of those of artificial creation, the flow of all the waters of said area, from
19 whatsoever source originating, was as hereinabove and in this Bill alleged; that owing to the natural character and level formation of said prairie zone necessarily traversed by such waters in reaching their outlet in Lake Traverse and the Bois de Sioux River, the drainage of said delta zone was slow and gradual, extending over considerable periods of time in each year and by reason of the same conditions, the volume of water reaching the above described outlets in said lake and river was never such as to appreciably exceed their capacity or cause other than purely temporary and limited overflowage. That except as said waters, accumulated as aforesaid, in the general region of the delta zone, were, by reason of the physical conditions hereinabove described, more or less permanently stored there, all thereof found their outlet and were accommodated and disposed of through the natural channels and flowage hereinabove mentioned.

Twelfth. That the conditions hereinabove alleged had existed for many years previous to the construction of the system of canals and ditches by the State of Minnesota hereinafter alleged; that during that period the entire area in the State of North Dakota herein in question, extending along the westerly bank of the Bois de Sioux

River and comprising upwards of twelve thousand (12,000)
20 acres, had been settled and improved by the public and
citizens of the last named State; that said lands had been for upwards of thirty (30) years, held, owned, occupied, improved and used for the ordinary purposes of husbandry and agriculture, during all of which period the natural conditions with respect to the adjacent area within the State of Minnesota and the waters thereof, had, at all times, continued substantially as hereinabove described. That during said period, all that portion of the lands in the State of North Dakota, as indicated in yellow on the map, Exhibit "A," hereto attached and hereby made part hereof, were held and owned and at the commencement hereof, are held and owned by citizens of the State of North Dakota under titles acquired from the Government of the United States and from individuals. That said lands were amongst the most valuable, fertile and productive comprised within the entire area of the State of North Dakota. That at the date of the commission of the trespass herein complained of, there were embraced within said area approximately eighty farms, all whereof were improved and in high state of cultivation. That there were erected and in use thereon, various farm structures and improvements exceeding in value Two Hundred and
Fifty Thousand ($250,000) Dollars and that said lands, ex-
21 clusive of such improvements exceeded in value One Million ($1,000,000) Dollars. That there had also been constructed on said lands by public authority, various public improvements, including highways, bridges, culverts, public buildings, etc., the value whereof exceeded Thirty-five Thousand ($35,000) Dollars. That in the year 1914 there were assessed and collected upon the privately owned lands and improvements within said area for state and municipal taxes, approximately Five Thousand ($5,000) Dollars.

Thirteenth. That previously to the year 1900, the State of Minnesota with the ostensible object and purpose of draining and reclaiming a large area of swamp and overflowed land belonging to that State in the immediate area or region of the above described delta zone, caused to be constructed a canal or ditch, known as the Mustinka State Ditch, extending in a general easterly and westerly direction from approximately Section Twenty (20), Township One Hundred Twenty-eight (128), Range Forty-four (44) west to Section Eighteen (18), Township One Hundred Forty-eight (148), Range Forty-five (45) west, a distance of some seven (7) miles; that the canal or ditch so constructed intersected the Mustinka
River at several points and shortened its channel many miles
22 by cutting off a large detour thereof to the north. That such
canal or ditch had an average width of thirty-six (36) feet and an average depth of eight (8) feet and a fall from east to west of approximately three (3) feet to the mile; that as a result of the construction thereof, the flow of the waters in said delta zone were accelerated both in respect to volume and time. That by reason of the inability of the natural outlets and water courses at and around the west end of such canal or ditch to accommodate and dispose of said additionally accumulated waters, a large area both to

the north and south of said ditch, comprising upwards of seventy (70) square miles was more or less permanently overflowed and inundated. That in addition to the construction of the canal or ditch last mentioned, numerous other state and municipal ditches had been at or about the same time constructed in various parts of said watershed, all whereof found their outlet through the said first described Mustinka State Ditch and contributed to the concentration and accumulation of the waters in the vicinity thereof and the overflow of the region above indicated adjacent thereto.

Fourteenth. That the natural and only outlets for the accumulated waters last above indicated were those heretofore stated, viz: the channel or depression of the Mustinka River and the channel
23 of the Rabbit River. That the natural conditions of said outlets remained the same as heretofore stated. That owing to the level conformation of the said prairie zone through which the Mustinka River flows as well as the limited fall and tortuous course of that river, as aforesaid, the flow of said waters through that channel were relatively slow and a large portion thereof were disposed of by ordinary seepage and evaporation before reaching the said Lake Traverse. That the natural overflow of such waters, as aforesaid, found their outlet via the Rabbit River into the Bois de Sioux River as before and were cared for and disposed of through that channel. That the entire volume of water thus flowing into Lake Traverse and the Bois de Sioux River, as aforesaid, were insufficient to overtax the capacity of said lake and river and all thereof were disposed of without materially increasing the stage or level of water in either thereof at the point here in controversy and without damage or injury to the lands in the State of North Dakota to the west of and bordering the Bois de Sioux River, as aforesaid.

Fifteenth. That in 1911 and while the physical conditions were as last hereinabove alleged, the legislature of the State of Minnesota duly and regularly enacted a law of that State known as Chap-
24 ter 138 of the General Laws for 1911, entitled,—"An Act to Authorize the State Drainage Commission to Construct an Outlet for the Waters of the Mustinka State Ditch in Traverse County, Minnesota, and to Appropriate Money Therefor." That the Mustinka State Ditch in said title mentioned was and is the same as that hereinabove described. That the Preamble of said Act described the then existing conditions and the object and purpose of the enactment said Preamble and Act being as follows:

"Whereas, a special committee consisting of five members of the house of representatives of the legislative session of the year 1909, duly appointed under the resolution of said house duly adopted and which authorized the appointment thereof for the purpose and which was duly empowered to administer oaths and take the testimony of certain petitioners, seventeen in number, and others, in relation thereto, after taking such testimony, duly found and reported to said house that upwards of eight thousand acres of fertile farming lands in Traverse county, Minnesota, including the lands of the said petitioners, situated adjacent to the Mustinka river in

said county—previously under cultivation for about thirty years and during that time never overflowed—in the crop seasons of the years 1897 to 1908, were overflowed by overflow of the said Mustinka river; that such overflow of the said lands of the said petitioners and others during the said years, destroyed crops of the said
25 petitioners to the value of $28,302.00 and depreciated the value of the said lands overflowed, including the lands of the said petitioners, to an amount equal to the difference between forty dollars and fifteen dollars per acre; that the said overflows of the said river occasioned by and resulted from the construction of the Mustinka state ditch which was constructed by the State of Minnesota, during the years prior to 1896, but completed in said year, in order to drain lands situated in Grant county, Minnesota, then owned by the State of Minnesota, so as to make the said lands fertile, valuable and saleable, and for no other purpose; that the overflow of the said Mustinka state ditch is into the said Mustinka river whose channel is inadequate to take care thereof; that such overflows of said Mustinka state ditch and said Mustinka river have occurred each year since the construction of said ditch at times of rain or melting snow and will continue each year unless an adequate outlet for the surplus waters, brought to said Mustinka river as the result of the construction of said Mustinka state ditch, is constructed; that the waters which overflow lands in the vicinity of said Mustinka river collect in pools at various low places therein and become stagnant and a condition is thus created which is detrimental to the health of the people residing in the vicinity of the lands so overflowed and the same constitutes a menace to the public health and a public nuisance, in addition to being a private nuisance and injury to all persons owning lands overflowed thereby or residing in the vicinity of such overflowed land; that the
26 nature of such injury and nuisance is such that if caused by the act of an individual could and would be abated by action in the Courts and damages recovered therefor; that it is feasible to construct an adequate outlet for the waters of said Mustinka state ditch or for the surplus waters of said Mustinka river so as to abate said nuisance and injury and so as to prevent injury to the health of the inhabitants of the vicinity of said ditch and said river and to promote public health, at a cost of about thirty-five thousand dollars ($35,000.00)."

Be it enacted by the Legislature of the State of Minnesota:

State Drainage Commission to construct outlet of Mustinka state ditch in Traverse county.—Section 1. The state drainage commission is hereby authorized, empowered and directed to construct, expeditiously as may be found feasible, an outlet of the Mustinka state ditch in Traverse county, Minnesota of a capacity adequate to receive and carry off all the waters thereof in order that the said waters thereof may be deflected from and prevented from flowing into the Mustinka river in said county, and in order to abate the public nuisance created by the overflow of waters from said Mustinka state ditch and prevent injury to the health of the inhabitants

of the vicinity of said ditch and said river and the lands overflowed by the waters thereof, and to promote public health; provided, however, that if said commission shall find it feasible
27 to deepen and widen the channel of the said river so as to make it feasible to use the channel of said river as an outlet to said ditch and duly safeguard the lands adjacent to said river against overflows thereof in the future, then the said drainage commission are hereby authorized and empowered so to construct an outlet for the said Mustinka state ditch, the total amount to be expended by the state therefor not to exceed thirty-five thousand dollars.

$35,000 appropriated.—Sec. 2. The sum of thirty-five thousand dollars, or whatever part thereof may be found necessary to do what is authorized in section 1 hereof to be done is hereby appropriated out of any funds in the state treasury, not otherwise appropriated.

Sixteenth. That following the enactment of the law last aforesaid and during the years 1914 and 1915, the State of Minnesota, in conformity to the provisions of said Act, and a supplemental appropriation for the same purpose made by the General Laws of 1915, constructed and opened a ditch or canal having an average width of sixty (60) feet and an average depth of thirteen (13) feet from the outlet of the said Mustinka State Ditch following the general course of the channel or depression of the Mustinka River to a point at or near the latter's outlet in Lake Traverse, a distance of approximately sixteen (16) miles. That as a result of said construction, in so far as the same followed the general
28 course of the said Mustinka River, the latter was straightened, widened and deepened, and the new and artificial channel thus created superseded the previously existing natural channel of said river, as the outlet of the waters hereinabove described.

Seventeenth. That the canal or ditch last above mentioned was completed in the spring of 1915. That with the opening of the spring of 1915, said canal or ditch became the receptacle of and outlet for the entire waters of the moraine zone above described and the accumulated waters of the delta and adjacent portions of the prairie zone, embracing an area of approximately seven hundred and fifty square miles, as aforesaid, all whereof were drained or flowed into said canal or ditch and found their way through the same into Lake Traverse. That as a result of such construction, all of the overflow waters, which had previously found a natural outlet through the Rabbit River into the Bois de Sioux River, as hereinbefore alleged, were diverted from that channel and the entire volume of such waters, previously accommodated and disposed of thereby found its outlet and flowed through said canal or ditch.

Eighteenth. That whereas previously to the construction of said canal or ditch, owing to the natural conditions, the drainage
29 and flow of the waters of said moraine and delta zones through the Mustinka River channel or depression, as here-

inabove alleged, were gradual, after the construction thereof a vastly increased volume of water found its outlet therein with greatly accelerated rate of flow, resulting in raising the stage of the waters of Lake Traverse and the Bois de Sioux River approximately five (5) feet above the normal level of high water mark and the consequent inundation and overflow of the entire area of the State of North Dakota hereinabove and in Paragraph Twelfth of this Bill more particularly described.

Nineteenth. That commencing with the opening of the spring of 1915, all of the waters of the moraine and delta zones, as well as those accumulated in the region of the Mustinka State Ditch, as aforesaid, were diverted by said canal or ditch and discharged into Lake Traverse. That not only was the volume of water thus diverted and discharged into said lake largely increased over that naturally and ordinarily finding an outlet therein but also the movement and flow of all the waters in the above described Mustinka watershed was so accelerated by the construction of said canal or ditch that the time consumed in the flowage of said waters from their source to such outlet was materially lessened. That whereas, prior to the
30 construction and completion of said canal or ditch, such waters required from twelve to twenty days in flowing from said moraine and delta zones to the outlet in Lake Traverse, after such construction, the passage of said waters required relatively few hours between said points.

Twentieth. That owing to the matters last hereinabove alleged, in the spring of 1915, shortly following the seeding and planting of the area of the State of North Dakota hereinabove and in Paragraph Twelfth described, the level of the water in the said Lake Traverse and Bois de Sioux River was raised to such height that all of said lands were inundated and overflowed. That such overflow and inundation was caused solely by the construction of the canal or ditch above described and the consequent rapid and artificial discharge of the waters of the said Mustinka River Watershed by and through the same as aforesaid. That said condition of overflow and inundation owing to the incapacity of the channel of the said Bois de Sioux River to accommodate the excessive volume of waters precipitated therein as aforesaid, has ever since continued, wholly destroying the crops in said area and the use of said overflowed lands for any agricultural purposes whatsoever. That said waters
31 covered said area to the depth of a foot or more for a considerable period of time, remaining in a condition of stagnancy, thereby producing a menace to the health and comfort of the inhabitants of said area and all others in the immediate vicinity thereof.

Twenty-first. That in the spring of 1916 and solely by reason of the same artificial conditions hereinabove alleged, the entire area within the State of North Dakota was again inundated and overflowed, wholly preventing the planting and seeding of said area and wholly destroying its use for agricultural purposes, and that such

condition of inundation and overflow continues at the time of the filing of this Bill.

Twenty-second. That solely by reason of the acts of the State of Minnesota, as aforesaid, the occupants of said area lost the entire crops therein during the year 1915 of a value exceeding One Hundred and Fifty Thousand ($150,000) Dollars; that they have been deprived of the use and benefit of said lands for agricultural purposes during the year 1916 to their loss and damage in a sum exceeding One Hundred Thousand ($100,000) Dollars, that so long as said conditions of trespass are continued, the entire area will be rendered useless and worthless for agricultural or any other purposes whatsoever.

32 Twenty-third. That as your orator is informed and believes, unless restrained and enjoined in the premises, the defendant, the State of Minnesota, will continue the commission of the acts herein and in this Bill alleged to the great and constantly increasing damage of your orator and its citizens. That the recurrence of such periodic overflowing of the lands herein described is a constant and continuous menace to the health of the citizens of your orator not only those occupying the lands immediately affected by such overflow but those occupying a large area adjacent thereto and in the vicinity thereof.

Twenty-fourth. That the loss and injury to your orator by reason of the acts here complained of is great and irreparable and such as may not be adequately or at all compensated or estimated in money damages. That your orator and its citizens have already suffered loss, by reason of the unlawful acts herein complained of in the damage to the physical properties herein described, exceeding the sum of One Million ($1,000,000) Dollars and such loss and damage will be materially enhanced by the continuation and perpetuation of the conditions here complained of.

Twenty-fifth. That for convenience, your orator has attached hereto a map or plat of the areas of the State of North Da-
33 kota and Minnesota herein involved, said map being marked Exhibit "A" and hereby referred to and made a part of this Bill. That the general outline of the said Mustinka watershed is marked and indicated on said map in an outline shaded in yellow. That the area of overflow in the region of the delta zone is shown on said map or plat colored blue. That the so-called Mustinka State Ditch and the outlet thereof, is shown on said map colored red. That the area of overflow here involved within the State of North Dakota is indicated on said map and colored yellow.

Twenty-sixth. That your orator has no adequate remedy or relief at or by the rules of common law and can only have such relief by the application of principles of equity.

Wherefore, Forasmuch as your orator is otherwise remediless at common law and can only have adequate relief through the inter-

position of equity, your orator prays the judgment of the Court as follows:

First. That the acts herein complained of on the part of the State of Minnesota may be held and adjudged to be unlawful and to constitute an unlawful trespass on the domain of the State of North Dakota.

Second. That the continuation of such acts with the conditions necessarily resulting therefrom be adjudged to constitute an
34 unlawful nuisance, and as such, that their perpetuation and continuation by the State of Minnesota be perpetually restrained and enjoined.

Third. That the amount of damage sustained by the State of North Dakota and its citizens be ascertained and determined and that a proper judgment and decree therefor against the State of Minnesota be rendered herein.

Fourth. That to the end last aforesaid the Court, by appropriate order, may permit all parties individually interested in any of the matters here in controversy or in the assertion of individual rights growing out of such matters, to be heard and to have their damages assessed, as the Court may direct, that the rights of all may be fully and adequately protected by the final decree to be herein rendered and entered.

Fifth. That a permanent injunction issue against the State of Minnesota enjoining and restraining said last named State permanently from a repetition and continuance of the trespass and other unlawful acts herein and in this Bill alleged.

Sixth. That a permanent injunction issue against the State of Minnesota compelling it to close and abate the Mustinka State
35 Ditch, and the outlet thereof constructed under legislative authority as above alleged, and to refrain from using said ditch and outlet for draining the waters of the Mustinka River Watershed into Lake Traverse.

Seventh. That a permanent injunction issue against the State of Minnesota, mandatory in character, and requiring said State to restore the Mustinka water course to its natural condition as before said Mustinka State Ditch and outlet were constructed and opened and similarly enjoining the said State of Minnesota from the construction or creation of any artificial conditions resulting or to result in draining a volume of water into the said Lake Traverse or the Bois de Sioux River, exceeding the natural capacity thereof and causing, or to cause, the overflow of any part of the area of the State of North Dakota.

Eighth. For any other or further relief consistent with equity and the case hereby presented.

May it please the Court to grant unto your orator, its Writ or Process of Subpœna to issue out of and under the seal of this Court,

thereby compelling the State of Minnesota to be and appear at a time and place to be fixed by said Writ, and then and there
36 to make full, true and perfect answers to the allegations of the foregoing Bill but not under oath, answer under oath being hereby waived, and to abide by and perform the judgment and decree to be by the Court herein rendered and entered.

And your orator will ever pray.

THE STATE OF NORTH DAKOTA,
Complainant,

By HENRY J. LINDE,
Attorney General.
FRANCIS J. MURPHY,
A. R. BITZING,
Assistant Attorneys General.

M. H. BOUTELLE,
JOHN LIND,
I. C. PINKNEY,
Solicitors and of Counsel for Complainant.

37 Office Supreme Court, U. S. Filed Nov. 9, 1916. James D. Maher, Clerk.

(Here follows diagram marked page 37.)

Exhibit A

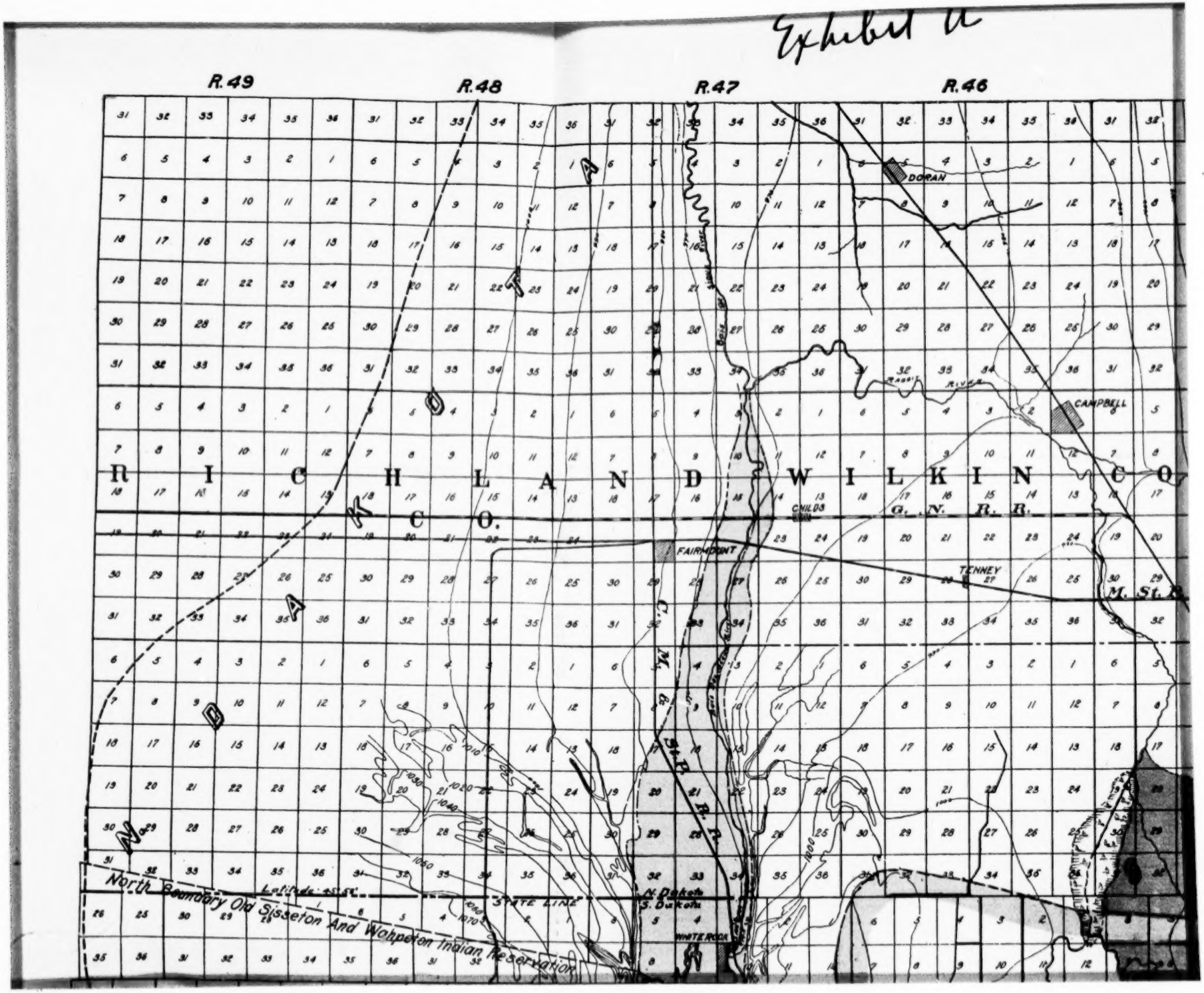
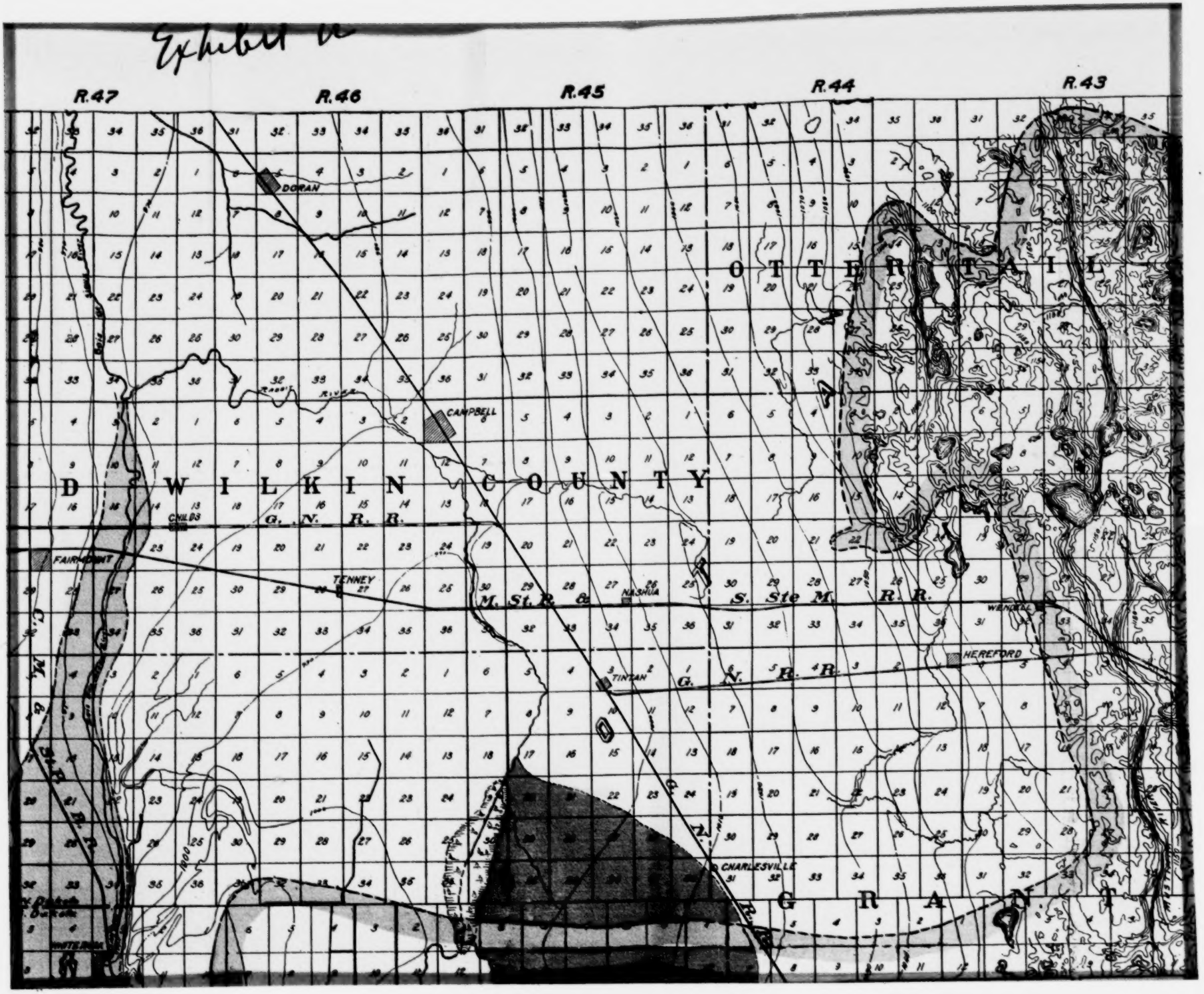
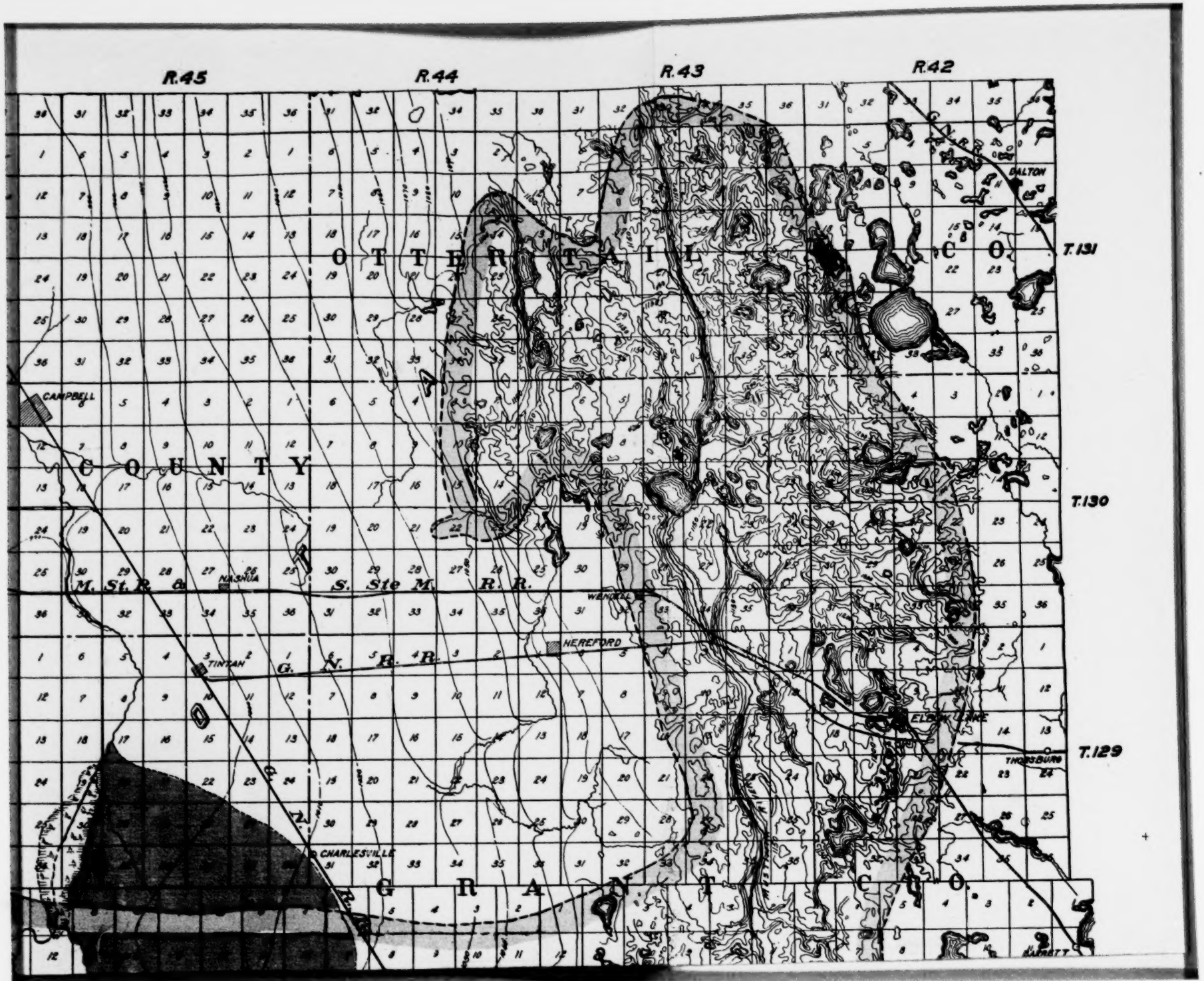

R.49
R.48
R.47
R.46
RICHLAND CO.
WILKIN CO.
DORAN
CAMPBELL
CHILDS
FAIRMONT
TENNEY
G. N. R. R.
M. St. P.
St. P. R. R.
North Boundary Old Sisseton And Wahpeton Indian Reservation
STATE LINE
N. Dakota
S. Dakota
WHITE ROCA

Exhibit A


R.47
R.46
R.45
R.44
R.43
DORAN
CAMPBELL
OTTERTAIL
DWILKIN COUNTY
CHILDS
G. N. R. R.
FAIRMONT
TENNEY
NASHUA
M. St. P. & S. Ste M. R. R.
WENDELL
HEREFORD
TINTAN
G. N. R. R.
CHARLESVILLE
G. N. R.
GRANT
WHITE ROCK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R.44
R.43
R.42
T.131
T.130
T.129
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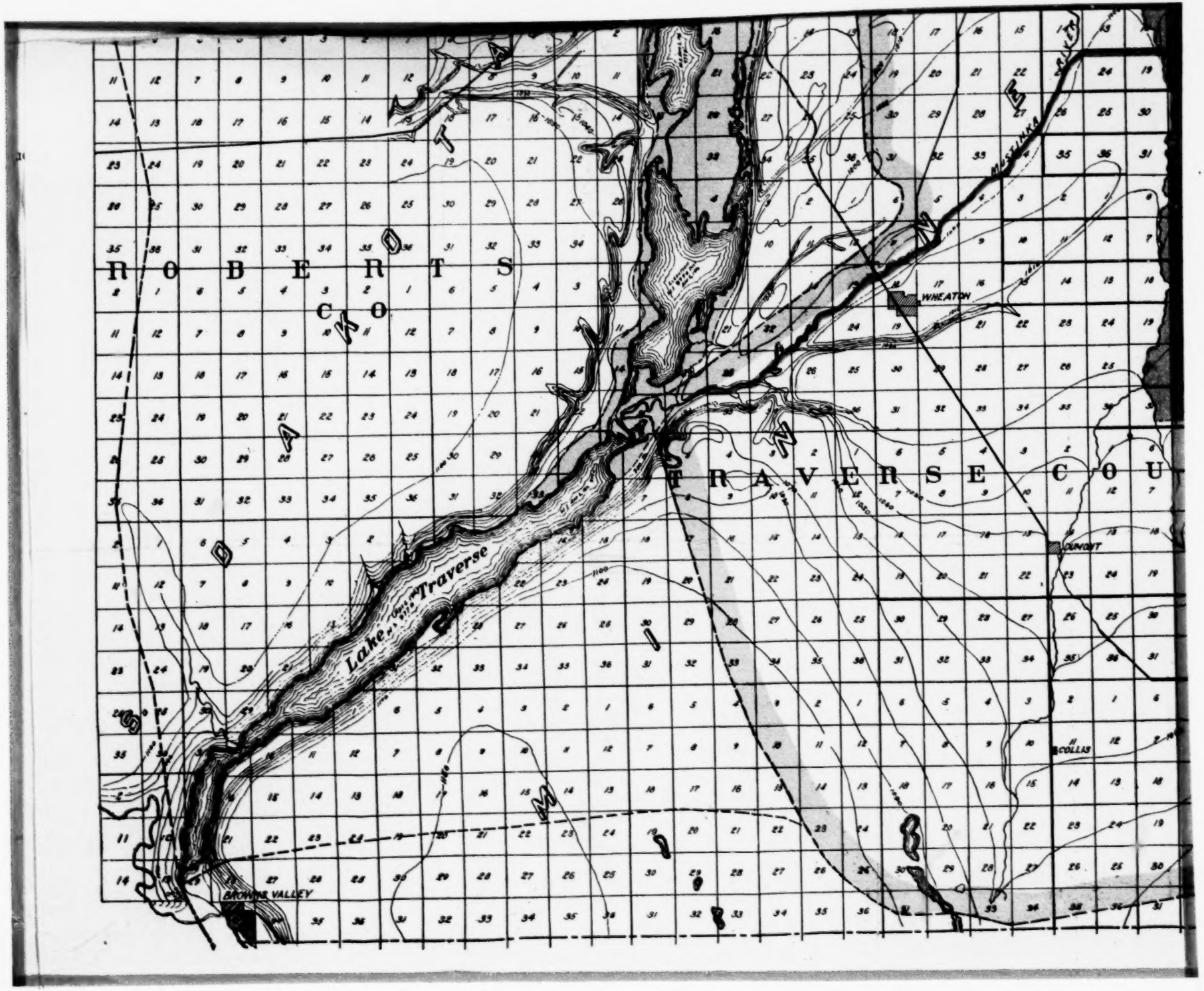
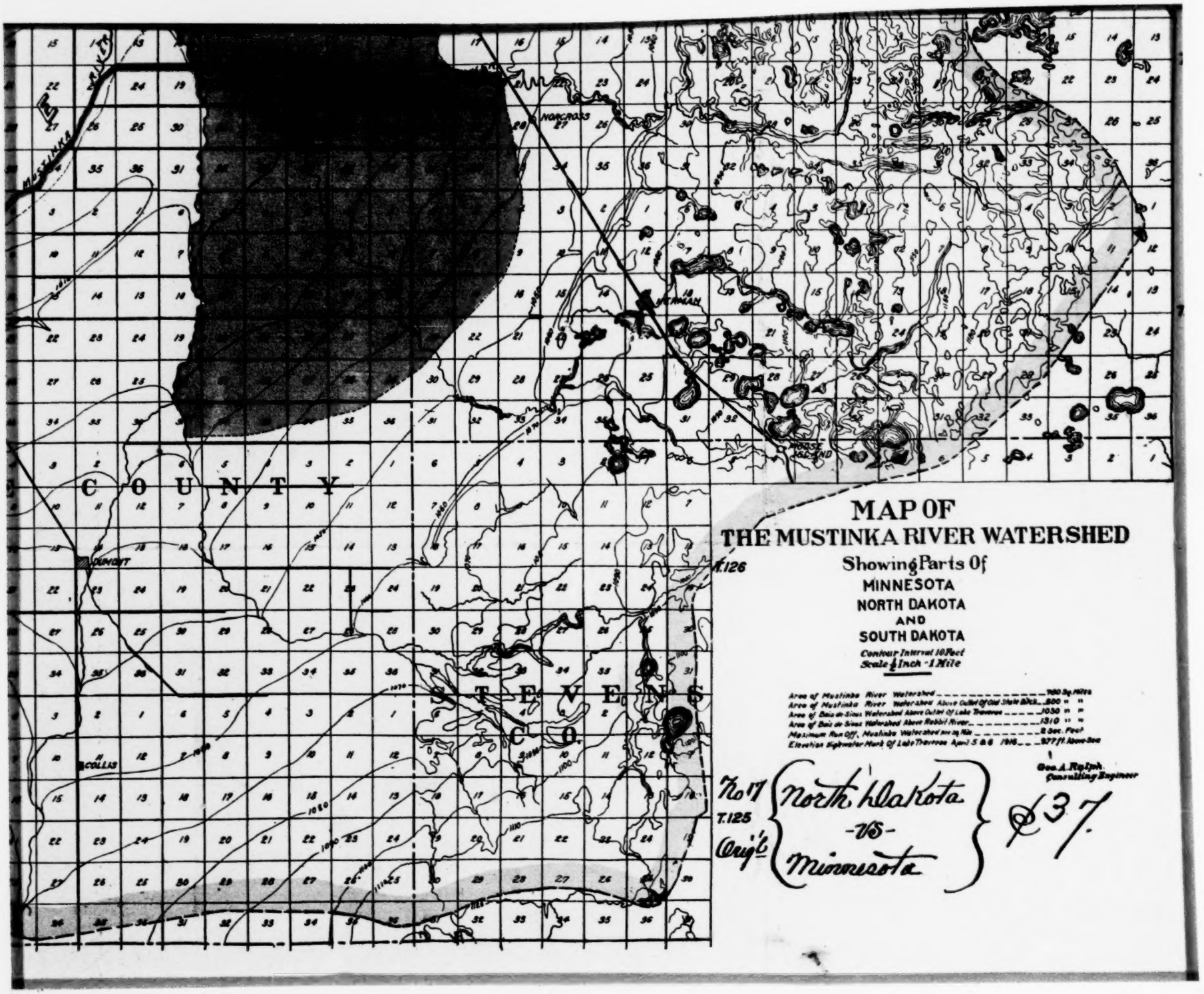
GRANT CO.
CAMPBELL
NASHUA
TINTAH
CHARLESVILLE
M. St. P. & S. Ste M. R. R.
G. N. R. R.
WENDELL
HEREFORD
BALTON
ELBOW LAKE
THORSBURG
BARRETT


ROBERTS COU
TRAVERSE COU
Lake Traverse
WHEATON
CLINTON
COLLIS
BROWNS VALLEY
MUSTINKA RIVER



MAP OF THE MUSTINKA RIVER WATERSHED

Showing Parts Of

MINNESOTA

NORTH DAKOTA

AND

SOUTH DAKOTA

Contour Interval 10 Feet

Scale 1 Inch - 1 Mile

Area of Mustinka River Watershed	780 Sq. Miles
Area of Mustinka River Watershed Above Outlet Of Old State Ditch	500 " "
Area of Bois de Sioux Watershed Above Outlet Of Lake Traverse	1030 " "
Area of Bois de Sioux Watershed Above Rabbit River	1310 " "
Maximum Run Off, Mustinka Watershed per sq. Mile	2 Sec. Feet
Elevation Sighted for Mark Of Lake Traverse April 5 & 6 1916	977 ft. above Sea

Geo. A. Ralph
Consulting Engineer

No 17

{ North Dakota -vs- Minnesota }

Civil

$37.

And on the same day, to wit, the 9th day of November, A. D. 1916, appearances were entered for the complainant as follows, viz:

38 *Order for Appearance.*

Supreme Court of the United States, October Term, 1916.

No. 27, Orig'l.

STATE OF NORTH DAKOTA, Complainant,

vs.

STATE OF MINNESOTA.

The Clerk will enter my appearance as Counsel for the Complainant.

(Name) M. H. BOUTELLE,
JOHN LIND,
(P. O. Address) *New York Life Bldg., Minneapolis, Minn.*

☞NOTE.—Must be signed by a member of the Bar of the Supreme Court United States. Individual and not firm names must be signed.

Endorsed: Supreme Court U. S. October Term, 1916. Term No. 27, Original. Appearance for Compl't. Filed Nov. 9th, 1916.

38½ And on the same day, to wit, on the 9th day of November, A. D. 1916, the subpœna was issued to the Marshal.

And afterwards, to wit, on the 24th day of November, A. D. 1916, the subpœna and marshal's return were filed in words and figures following, viz:

39 THE UNITED STATES OF AMERICA, *ss:*

[SEAL.]

The President of the United States to the State of Minnesota, Greeting:

For certain causes offered before the Supreme Court of the United States, having jurisdiction in Equity, you are hereby commanded that, laying all other matters aside and notwithstanding and excuse, you be and appear before the said Supreme Court, holding jurisdiction in Equity, on Monday, March 5th, 1917, at the City of Washington, in the District of Columbia, being the seat of the National Government of the United States, to answer unto a bill of complaint of the State of North Dakota in said Court exhibited against you.

Hereof you are not to fail at your peril.

Witness the Honorable Edward D. White, Chief Justice of the United States, at the City of Washington, the 9th day of November, A. D. 1916.

JAMES D. MAHER,
Clerk of the Supreme Court of the United States.

Service of the above Subpœna and a certified copy of the Bill of Complaint therein mentioned are this 21st day of November, A. D. 1916, accepted and acknowledged.

J. A. A. BURNQUIST,
Governor of the State of Minnesota.

40 LYNDON A SMITH,
Attorney General of the State of Minnesota.

Office of the Marshal Supreme Court U. S.

Came to my hand the 9th day of November, 1916, and executed through acceptance of service in writing herein by the Governor of the State of Minnesota and the Attorney General of the State of Minnesota on the 21st day of November, A. D. 1916.

Witness my hand this 24th day of November, 1916, at the City of Washington.

FRANK K. GREEN,
Marshal Supreme Court U. S.

(Endorsed:) Supreme Court, U. S. October Term, 1916. Term No. 27. Original. State of North Dakota, Complainant, vs. State of Minnesota. Subpœna and Marshal's Return as to Service. Filed Nov. 24, 1916.

And afterward, to wit, on the 3d day of March, A. D. 1917, the answer was filed in words and figures following, viz:

41 United States of America, Supreme Court.

THE STATE OF NORTH DAKOTA, Complainant,

vs.

THE STATE OF MINNESOTA, Defendant.

Answer.

The Answer of the State of Minnesota to the Bill of Complaint.

Now comes the State of Minnesota, the defendant, and says for answer thereto:

I.

That in answer to the second paragraph of the bill herein the defendant states that no controversy has arisen between the State of North Dakota and the State of Minnesota in any respect except as the same is before this Court in this action, and that an effort to settle the controversy herein set forth has been made by the legislature of the
State of Minnesota by the appointment of a committee of the
42 legislature for that purpose, which committee in good faith, on the ninth day of February, 1917, met a committee of the legislature of North Dakota for the purpose of discussing with said committee the elements of this controversy and the possibility of its settlement, but without avail.

II.

That the complainant herein has no interest as a state in the relief or any part of the relief demanded by the bill herein, in this, that all of the damages done or likely to be done, if any have been done or may hereafter be done, of the nature of those alleged in the bill, have been done or will be done to residents of the state, and the complainant is not the real party in interest, but only individual citizens and municipalities of that state and persons resident therein and these wholly as to their individual property, and the defendant therefore pleads in bar to this action and all of it, that such general governmental interest of the state of North Dakota in its citizens is not such that complainant may bring against the State of Minnesota an action to recover damages for injury to, or to prevent such future injuries of like kind to, the property of its individual citizens. And the defendant further alleges that its constitution contains the following clause, to-wit:

"The state shall never contract any debts for works of internal improvements, or be a party in carrying on such works, except in cases where grants of land or other property shall have been made to the state, especially dedicated by the grant to specific purposes, and in such cases the state shall devote thereto the avails of such grants, and may pledge or appropriate the revenues derived from such works in
aid of their completion."

43 That no grant has been made to the State of Minnesota for the purpose of constructing ditches and none have been constructed by the state except in aid of public health, but said quoted paragraph is not binding upon counties and other subdivisions of the state. That the reasons for the construction of so much of the Mustinka Ditch as lies between the so-called delta zone and Lake Traverse is as stated on page seventeen of the printed bill herein and has been so found by the district court in and for the County of Traverse, State of Minnesota, a court of general jurisdiction. That the benefits to health secured by the construction of the said Mustinka Ditch were shared alike by the residents of all the lowlands along both sides of the Bois de Sioux River.

III.

Answering the third paragraph of said bill the defendant admits the boundary line between the two states, parties hereto, to be as alleged and the defendant alleges that the general character of the territory along both sides of said boundary line at the places in controversy in the pleadings herein is not that of a practical level prairie formation and is not uniform in character, but the land along said boundary line was in its natural state marshy and low; that while it slopes gradually toward the northwest in the northerly portions of the territory referred to herein, it falls abruptly and sometimes to the extent of ten (10) feet to the mile at the southern part of the territory described and referred to in this pleading, and the water in the region herein described has an ordinary elevation of nine
44 hundred fifty-six (956) feet at the mouth of Rabbit River and nine hundred seventy-four (974) feet at the surface of Lake Traverse; that said last named figure is the elevation referred to as sea level datum, as determined by the United States Geological Survey and shown on the chart of the quadrangle prepared under the direction of Charles D. Walcott, director, and surveyed by George T. Hawkins and J. T. McCoy in 1902.

IV.

Answering the fourth paragraph of said bill the defendant admits that the above mentioned Lake Traverse was and is under ordinary natural conditions a low, shallow body of water, a large part of whose area was essentially a marsh, but the defendant denies that the waters thereof have a mesne surface elevation of nine hundred seventy-two (972) feet above sea level, and alleges that during a normal stage of water and an average season, so far as rainfall is concerned, it was nine hundred seventy-four (974) feet above sea level; that the Bois de Sioux River was and is the outlet, and the waters of both said lake and river flow northerly; the banks of said river were relatively low, to-wit: three (3) to five (5) feet, and the width of the channel varied from one (1) to four (4) rods; during the stages of high water during spring freshets, et cetera, the level of its waters was raised above its banks and limited areas along its course overflowed for a brief period and did not cause serious or permanent damage or injury to any large area of the lands bordering the said river on either side, but the same area as was inundated as claimed in the bill herein, or greater area was occasionally inundated under and during conditions existing prior to 1915, at times of freshets
45 and excessive rainfalls, and always in times of ordinary freshets and very heavy rains more or less damage was done. That the damage so done was less serious and permanent than that done in 1915 and 1916 only because of the less improvement of the area flooded.

V.

Answering the fifth paragraph of the bill the defendant alleges that the water of Lake Traverse gradually flows in a northeasterly direction and the waters of the Bois de Sioux River in a northerly direction between Minnesota and so much of South and North Dakota as lies south of a point opposite the mouth of the Rabbit River to the outlet of Lake Traverse; that on the west of said river there is a slope toward the said Bois de Sioux River and slightly toward the north, to-wit: about one (1) foot to the mile; that the mesne elevation of said land in North Dakota in the section here involved varies from nothing to twenty-four (24) feet above the mouth of Rabbit River; and of the lands lying in North Dakota westerly from the Bois de Sioux River are of elevation as follows: Four (4) miles west of the mouth of the Rabbit River, twenty-four (24) feet higher than the water at the mouth of the Rabbit River; that four (4) miles west of the Bois de Sioux River on the state line between North Dakota and South Dakota, fifty-six (56) feet higher than the water of said Bois de Sioux River; and the land west of the said Bois de Sioux River between the south line of North Dakota and a point opposite the mouth of the Rabbit River is higher on the average than the lands on the east side of the Bois de Sioux River east of the same area; that points within eight (8) miles west of the southeast
46 corner of North Dakota rise as much as one hundred (100) feet higher than the level of the Bois de Sioux River; all the land west of the said river and lake in South Dakota, except a narrow strip, is hilly; that on the east of said river and lake there is a comparatively level area for approximately twenty (20) miles east, and the general slope of said area is toward said lake and river toward the north, and the average elevation of the east line of said twenty (20) mile strip is approximately forty (40) feet above the level of said lake and river; that said area, though not technically nor accurately described as the prairie zone (but is mostly the bed of a pre-historic lake) may be so termed for the purposes of this action. The defendant alleges that from the west shore of Lake Traverse and from two (2) miles or less west of the Bois de Sioux River in South Dakota rise a series of hills which extend back for twelve (12) to fifteen (15) miles, more or less, and northward into North Dakota, which hills rise to a height of eight hundred (800) feet or more above the said lake and river and from these hills flows northerly a river known as Wild Rice River, which river, before it reaches a point west of the mouth of the Rabbit River, flows easterly into the flat land west of the Bois de Sioux River, and in times of high water casts large quantities of water into the region claimed in this action to have been flooded and damaged, and in the years 1915 and 1916 did so cast large quantities of water into and upon the flooded area and those waters contributed largely, but indefinitely, to the flooding of said area and the damage caused by such flooding and inundation. That this river is omitted from the map accompanying the bill herein as Exhibit "A" thereof.

47

VI.

Answering the sixth paragraph of said bill the defendant admits that immediately east of said prairie zone in Minnesota is what may be termed a "moraine zone", except that defendant denies that its elevation is approximately twelve hundred (1200) feet or any other or different number of feet than, to-wit: eleven hundred (1100) feet, and refers to the complainant's Exhibit "A" as justification of defendant's allegation as to the approximate average elevation of said moraine zone and as an indication of its hilly character.

VII.

Answering the seventh paragraph of said bill the defendant alleges the facts to be that the water of the said "moraine zone" flows into three definite basins. First: the Pomme de Terre basin to the east; Second: Rabbit River basin to the northwest; and, Third: the Mustinka basin to the southwest. That the Rabbit River basin is the confluence of many small creeks and water courses from the westerly side of the moraine zone, and these waters tend to collect in a marsh largely in the southwestern portion of township one hundred twenty-nine (129), range forty-five (45), which marsh is locally known as the "Tintah Slough" and said waters flow hence through the Rabbit River to the Bois de Sioux; that there is between this marsh and surrounding country a slight ridge shown upon complainant's Exhibit "A" by a dotted line shaded yellow through the north tier of sections of township one hundred twenty-eight (128),
48 range forty-five (45); that south of said ridge is a low area approximately like that described by complainant in the seventh paragraph of its bill and which area alone is properly called in connection with the Mustinka River basin the "delta zone"; that said delta zone is not level but slopes northwesterly at an average rate of about five (5) feet to the mile as is shown by the contour lines on complainant's Exhibit "A", which slope was sufficient to cause a reasonable drainage of the surface in ordinary seasons.

VIII.

Answering the eighth paragraph of said bill the defendant says that the overflow of the Mustinka delta zone above described was not sufficient to permanently inundate or saturate the soil, but only to do so in the spring after snowfall was heavy or at other seasons after unusual rainfall and then only for a relatively short time after the spring freshet was over or the unusual rainfall had ceased. This zone was practically all under cultivation for many years prior to 1915.

IX.

Answering the ninth paragraph of said bill the defendant alleges that the Bois de Sioux River north of the point of confluence with

the waters of said Rabbit River has banks that are subject to overflow in high water and were overflowed and the land at each side of its said banks inundated during the time mentioned in complainant's bill; that the lands particularly described therein were inundated and flooded.

49

X.

Answering the tenth paragraph of said bill the defendant alleges that the said Mustinka River was a more raid stream through the prairie zone to its outlet than was the Bois de Sioux River in the territory involved herein, and actually descended twenty-one (21) feet in the last fourteen (14) miles of its course, and to the mouth of the ditch hereinafter referred to from the west side of the moraine zone descended thirty (30) feet, which is an average of nearly five (5) feet to the mile; that the rate of its current conformed to the slopes just alleged; that the elevation of said Rabbit River at its source was somewhat higher than that of the Mustinka River at its point nearest to the source of the Rabbit River, but denies that the source of the Rabbit River, under normal conditions, was in said Mustinka delta zone, but admits that its channel was more clearly defined and its fall greater as it flowed toward the Bois de Sioux, and at ordinary stages a great part of the water accumulated and collected in said delta zone as aforesaid, to-wit: ninety (90) per cent, found its outlet through the Mustinka River. Defendant alleges and admits that at extremely high stages of water a small proportion of such waters, to-wit: not to exceed ten (10) per cent, found their outlet and flowed through the Rabbit River to the Bois de Sioux River. The defendant further alleges that whereas in a state of nature the headwaters of the Rabbit River were higher than the delta zone, as alleged by the complainant, after the completion of the ditching projects in and about said delta zone, to-wit: after 1914, and continuously since to the present time, there were and have been ditches through said "Tintah Slough" and into Rabbit
50 River, and by said ditches more water at all the times during which loss or damage has been alleged to have occurred, flowed and has flowed proportionately and absolutely from said "Tintah Slough" and also from the Mustinka delta zone to and through said Rabbit River than when no ditches or other improvements had been made, or when there was no connection except such as existed when there had been no interference with the natural surface or drainage of the land in that vicinity.

XI.

Answering the eleventh paragraph of said bill the defendant alleges that under normal and natural conditions the entire flow of the Mustinka delta area was through the Mustinka River into Lake Traverse, which lake naturally, and particularly in times of high water, constituted an impounding and distributing reservoir and thereby the waters of the Mustinka River were retained and gradually allowed to discharge therefrom through the Bois de Sioux

River and thus to protect the people along the valley of the Bois de Sioux River from injury from overflows, whereas that water flowing through the Rabbit River fell into the Bois de Sioux River at a point where there were neither impounding nor distributing reservoirs and where said water would impede the flow of said Bois de Sioux River and set it back and cause to flow over upon the people and land upon its borders water in a disastrous amount. The defendant alleges that in spite of the impounding of said waters in Lake Traverse there has been occasional overflow of water therefrom to a greater extent than the Bois de Sioux could
51 carry within its banks, and the overflow and the consequent injury therefrom have been repeated in years past when all of the conditions were normal and natural, and the defendant alleges that by reason of the physical conditions hereinbefore described or those described in the bill of complaint, all the waters impounded in said Lake Traverse did not find their outlet nor were they accommodated or disposed of through channels or flowage as such channels or regions of flowage naturally existed. In times which were not normal as to rainfall or spring freshets the flooding was similar to, and sometimes greater than that in 1915 and 1916.

XII.

Answering the twelfth paragraph of said bill the defendant alleges that the entire area described as injured by the flooding thereof was settled at different times extending backward from 1915 to 1880 and the lands described in said bill had been improved at different times from 1880 to 1915, but mostly during extremely dry periods which occurred the first about 1892 to 1895 and the next 1902 to 1904 inclusive. That said lands were largely marshy and swampy and valuable only in dry seasons when they were indeed fertile and productive, but said lands were never highly valuable because of their being subject to overflow by extremely high water.

XIII.

Answering the thirteenth paragraph of said bill the defendant alleges that the canal or ditch therein called "Mustinka State Ditch" began in township one hundred twenty-eight (128), not one
52 hundred forty-eight (148); that it had an average width of about twenty-five (25) feet; that the area prior to the construction of the second Mustinka State Ditch, in which waters were accumulated, was less than sixty (60) square miles and said sixty (60) square miles were overflowed only in times of excessive high water.

XIV.

Answering the fourteenth paragraph of said bill the defendant says that the flow of the waters from both the Mustinka delta zone and the "Tintah Slough" respectively were slower than the same were after the channels of the Mustinka and Rabbit Rivers respect-

ively had been straightened and in some places enlarged by the ditches which have been referred to and by the other ditches which were dug in the Rabbit River for the purpose of enlarging the same, and branches thereof, and accelerating the flow of water through them. That at all times of high water, and especially at the times when there was high water in said Rabbit and Mustinka rivers in their natural condition, these rivers were insufficient to carry off the waters falling within their drainage basins without the same overflowing their banks and inundating the country lying between said rivers and the Bois de Sioux and particularly the country bordering said Bois de Sioux River, including the northern portion of the country described in the bill herein.

XV.

Answering the sixteenth paragraph of said bill the defendant alleges that in conformity to the provisions of the act of the legislature set forth in full in paragraph sixteenth of said bill
53 of complaint, and by aid of a supplemental appropriation therefor made in 1915 and for the purpose of improving the public health of the people living in the low land drained and about to be drained by the construction of a ditch along the general line and direction of the Mustinka River, such ditch was built, the average width of which ditch was not sixty (60) feet but was thirty (30) feet for the first two (2) miles, and forty (40) feet thereafter, and which ditch had an average depth not of thirteen (13) feet, but of six (6) feet from the point where the original drainage into the south branch of the Mustinka River emptied into the true Mustinka River in or about section eighteen (18) of township one hundred twenty-eight (128) north of range forty-five (45) west; that said ditch was open for a distance of approximately fifteen (15) miles. The defendant admits that as a result of said construction, so far as the same followed the general course of the said Mustinka River, the latter was for the most part, but not wholly nor in all places straightened or widened or deepened, and admits that the new and artificial channel superseded the previously existing natural channel; and except as hereinbefore in this paragraph admitted, the defendant denies each and every allegation of said paragraph seventeen.

XVI.

Answering the seventeenth paragraph of said bill the defendant alleges that with the opening of the spring of 1915 the second Mustinka State Ditch herein last before described carried ninety (90) per cent, and no more, of the waters of that portion of the moraine zone which flowed through the Mustinka delta zone, and the
54 waters of said delta zone and of the basin of the Mustinka River south and southeasterly and easterly of said delta zone that were within the same river basin into Lake Traverse, and that from said time the Rabbit River carried all of the waters of its basin and approximately ten (10) per cent of the waters of the Mustinka

Minnesota State Library,
St. Paul, Minn.

basin and a large amount of the waters of the Otter Tail River into the Bois de Sioux River and obstructed the channel of said river and set back and prevented the flow of the waters of said river and thereby contributed to the flooding of the lands described in the bill herein. Defendant further alleges that in the construction of each and every ditch which carried water into the Rabbit River there was every effort made and successfully made to carry its due share of the water of the delta zone into Rabbit River and states that during all the times mentioned in said bill since the completion of the ditches mentioned in paragraph seventeen thereof and ever since the time that they affected the flowage of any waters from the delta zone as aforesaid, the Rabbit River has carried its full, usual and natural amount of said water through its channel and emptied the same into the Bois de Sioux River; and the defendant expressly alleges that no greater than the natural proportion of the waters of the delta zone which flowed through the valley of the Mustinka River has ever since flowed through the same valley and been carried into Lake Traverse, and that no other different or larger proportion of water has been so carried than has ever been carried by the natural operation of said stream as compared with the Rabbit River, except as the natural flow into Rabbit River has been increased as herein alleged.

55

XVII.

Answering the nineteenth paragraph of the said bill the defendant alleges that the acceleration of the waters flowing through the Mustinka ditches was only such as to reduce the time of their flowing from the place where the first Mustinka ditch began, to Traverse Lake, from less than two (2) days to about twenty-four (24) hours, and the defendant alleges that such water never required from twelve (12) to twenty (20) days in flowing from said moraine and delta zones through the Mustinka River to the outlet in Lake Traverse and that the acceleration caused by the digging of the ditches aforesaid was never, in times of high water, more than twenty-five (25) per cent.

XVIII.

Answering the allegations in the twentieth, twenty-first, twenty-second, twenty-third, twenty-four, twenty-fifth and twenty-sixth paragraphs of the said bill, defendant says that it is without knowledge as to the exact facts alleged in the bill which are not squarely repugnant to and contradictory of the exact allegations of this answer. Defendant alleges that neither its unlawful acts or any other acts done, permitted or tolerated by the State of Minnesota have caused the complainant or its citizens or any of them to suffer a loss or damage exceeding *or* of the sum of one million ($1,000,000) dollars or of any other measurable sum or amount whatever or has caused proximately any loss to complainant, or its citizens. It alleges that such overflow and inundation as occurred in the locality

described in the bill in the seasons of 1915 and 1916 were
56 caused by an unusual and excessive rainfall in the basin of the Bois de Sioux River and Lake Traverse; that said excessive rainfall occurred in the years 1914, 1915 and 1916; that the water from said continuous and excessive rainfall flowed down both sides of the Bois de Sioux basin and accumulated to a depth of several feet, to-wit: two (2) to five (5) feet, and no more, above the average normal and natural surface of said Lake Traverse and Bois de Sioux River for a considerable time, to-wit: one (1) to two (2) months; that this accumulation of water flooded the strips of low land along said lake and river in the same way and to the same extent that these lands had been flooded at other times of high water; that the drainage done by the State of Minnesota and its various subdivisions into said lake and river, or through them, was not the cause of the high water and was of so little effect as to be immeasurable and cause no computable loss; that the waters so cast into said lake and river were accelerated by the ditching projects of the State of Minnesota, and its subdivisions and contributed to the water which inundated the lands described in the bill; that said water was collected and cast with greater rapidity and volume into the said lake and river as a result of the necessary drainage of low areas located in the State of Minnesota and to the east of the Bois de Sioux River and also of low areas in the states of South and North Dakota and brought by drainage systems and natural streams into said lake and river in volumes that could not be separately measured so as to determine the part of the waters brought from one state or from the other state or states by reason of the common and similar rainfall, ditches and canals existing in the several states and all contributing to the raising of the waters of said
57 lake and river. That the benefits from the construction of said ditches in the State of Minnesota were many times greater than the damage and loss caused by the overflow of the said Lake Traverse and Bois de Sioux River; that as a result of such drainage hundreds of farms have been benefited and thousands of acres of land rendered dry and tillable, beneath the surface of which land the water table was, during the growing season before such ditching, only a few inches, or at most a foot or two; that the greatest good to the greatest number of people in the basin of the Bois de Sioux River required that the lands which have been drained should be drained, and the drainage of said land has been along the line of the natural flow of said water and through the depressions, water courses, creeks and rivers which were by nature the outlets for the flowage of the water carried by them at the time at which the damage complained of occurred; that the drainage complained of in the bill was largely and decisively in aid of the health of the communities from which the waters were taken, and tended to the health of many times more people than were menaced or endangered as to their health by the overflows complained of in the bill; that the particular flooding set forth in the bill was due not only to the excessive rainfall and the ditching in both North and South Dakota, and the overflow of natural streams in both North and South

Dakota and Minnesota, but also to the overflow of that certain river known as the Otter Tail River which cast large quantities of its waters in the Rabbit River, which waters there mingled with those of the Bois de Sioux River and set back toward, and possibly into, Lake Traverse; that the prevention of the flow of water
58 through the ditches already constructed, as well as the prevention of the carrying out of the various projects for the further drainage of the lands in Minnesota, throughout the entire basin of the Red River Valley, would cause far greater damage, and to far more people, than would the continuation of the flow of water through the ditching systems involved herein and the further careful and scientific drainage of the wet lands along the borders and sides of the Red River Valley, including that part of it referred to in the bill.

Having thus made a full answer to all the matters and things contained in the bill this defendant prays that the bill be dismissed and for judgment for its costs in this behalf incurred.

LYNDON A. SMITH,
Attorney General, State Capitol, St. Paul, Minnesota.

STATE OF MINNESOTA, }
County of Ramsey, ss:

Lyndon A. Smith being first duly sworn says that he is the Attorney General of the State of Minnesota; that he has read the foregoing answer and that the same is true to the best of his belief.

LYNDON A. SMITH.

Subscribed and sworn to before me this 24th day of February, 1917.

[NOTARIAL SEAL.] G. K. SPANGENBERG,
Notary Public, Ramsey County, Minnesota.

My commission expires March 11, 1922.

Office Supreme Court, U. S. Filed Mar. 3, 1917. James D. Maher, Clerk.

59 And afterwards, to wit, on the 24th day of April, A. D. 1917, the motion and stipulation for the appointment of a Commissioner, &c., was filed in words and figures following, viz:

Supreme Court of the United States.

No. 27, Original Action.

THE STATE OF NORTH DAKOTA, Complainant,

vs.

THE STATE OF MINNESOTA, Defendant.

Notice of Motion.

To the State of Minnesota:

You will please take notice that the complainant herein, the State of North Dakota, by its counsel will move the above court on Monday, April 30, 1917, for the appointment of a commissioner to take testimony, fixing the rate of his compensation and payment of his disbursements, and setting the time and circumstances under which the testimony in this case shall be taken.

WILLIAM LANGER,
Attorney General.
HARRISON A. BRONSON,
Assistant Attorney General.

60 Supreme Court of the United States.

No. 27, Original Action.

THE STATE OF NORTH DAKOTA, Complainant,

vs.

THE STATE OF MINNESOTA, Defendant.

Motion.

Now comes the complainant, the State of North Dakota, in the above-entitled cause, by its respective counsel and moves the court that an order issue for the appointment of a commissioner to take and report the testimony in the above-entitled cause, fixing the rate of his compensation and the payment of his disbursements, and setting the time and circumstances under which the testimony in such cause shall be taken, in accordance with and pursuant to the stipulation therefor, hereto attached.

WILLIAM LANGER,
Attorney General.
HARRISON A. BRONSON,
Assistant Attorney General.

Due and personal service of the above notice of motion and motion admitted.

LYNDON A. SMITH,
Attorney General for State of Minnesota.

61 Supreme Court of the United States.

No. 27, Original Action.

THE STATE OF NORTH DAKOTA, Complainant,

vs.

THE STATE OF MINNESOTA, Defendant.

Stipulation.

It is herewith stipulated by and between the above-named complainant and the above-named defendant, through their respective counsel, as follows:

First. That Hon. Wallace B. Douglass may be appointed as a commissioner to take and return the testimony to this court in this cause without findings of fact or conclusions of law; that such commissioner shall be allowed, not to exceed ten dollars per diem for his compensation, together with his actual traveling and reasonable hotel expenses, an itemized statement of which shall be submitted to this court in his final report, and that he shall report to this court a stenographic copy of testimony taken before him; that the payment of compensation and his expenses may be made in such manner as the court may direct.

Second. That the complainant may take testimony at such place as it may indicate between the first day of June, 1917, and the first day of August, 1917, upon giving ten days' notice of the time and place of taking testimony to the counsel for the defendant.

Third. That the defendant may take testimony at such place as it may indicate between the first day of August, 1917, and
62 the first day of October, 1917, upon giving ten days' notice of the time and place of taking such testimony to the counsel for the complainant herein, excepting that the complainant herein may have an opportunity within such time above stated to present in rebuttal expert testimony in engineering and hydraulics immediately after the close of defendant's testimony in that regard.

Fourth. That all direct testimony of expert nature relating to engineering and hydraulics shall be taken on the part of the complainant during the month of July, 1917, and in rebuttal immediately after the close of defendant's evidence in that regard during the month of August, 1917, and in surrebuttal immediately after the rebuttal testimony in that regard of the complainant, except as may be otherwise ordered by this court.

Fifth. That the complainant may take testimony in rebuttal between the first day of October, 1917, and the fifteenth day of October, 1917, and the defendant likewise in surrebuttal between the fifteenth day of October, 1917, and the first day of November, 1917, at such time and place as they respectively may indicate by ten days' notice to opposing counsel.

Sixth. That the above set forth times designated for taking testimony may be varied upon consent of counsel for the respective parties, which shall have the same effect as an order made by this court when entered upon the record before the commissioner.

Seventh. A competent stenographer shall be furnished by each party to the commissioner, who shall be under the direction and supervision of such commissioner. Four copies of the testi-
63 mony shall be made, as soon as possible after the taking of each portion thereof, two for the commissioner and one for each of the parties.

WILLIAM LANGER,
Attorney General for North Dakota.
HARRISON A. BRONSON,
Assistant Attorney General for North Dakota.
LYNDON A. SMITH,
Attorney General for Minnesota.

Office Supreme Court, U. S. Filed Apr. 24, 1917. James D. Maher, Clerk.

And afterward, to wit on the 25th day of April, A. D. 1917, the following entry appears of record, viz:

64 27, Original.

THE STATE OF NORTH DAKOTA, Complainant,

vs.

THE STATE OF MINNESOTA.

Mr. Harrison A. Bronson, of counsel for the complainant, submitted to the consideration of the Court a motion and stipulation for the appointment of a commissioner to take the testimony in this cause.

April 25th, 1917.

And afterwards, to wit, on the 30th day of April, A. D. 1917, the following entry appears of record, viz:

65 Supreme Court of the United States, October Term, 1916.

No. 27, Original.

THE STATE OF NORTH DAKOTA, Complainant,

vs.

THE STATE OF MINNESOTA.

On consideration of the motion of counsel for the complainant and the stipulation of counsel for the respective parties to this cause,

It is now here ordered by the Court that Wallace B. Douglass, Esquire, of St. Paul, State of Minnesota, be, and he is hereby, appointed the Commissioner to take and return the testimony in this cause to this Court, without findings of fact or conclusions of law; that he shall be allowed not to exceed ten dollars per diem for his compensation together with his actual traveling and reasonable hotel expenses, an itemized statement of which shall be submitted to this Court in his final report, the payment of such compensation and expense to be made in such manner as the Court may hereafter direct.

It is further ordered that the complainant may take testimony at such place as it may indicate between June 1, 1917, and August 1, 1917, upon giving ten days' notice of the time and place to the counsel for the defendant, and that the defendant may take testimony at such place as it may indicate between August 1, 1917, and October 1, 1917, upon giving ten days' notice of the time and place to the counsel for the complainant, excepting that the com-

66 plainant may have an opportunity within such time above stated to present in rebuttal expert testimony in engineering and hydraulics immediately after the close of defendant's testimony in that regard.

It is further ordered that all direct testimony of expert nature relating to engineering and hydraulics shall be taken on behalf of the complainant during the month of July, 1917, and in rebuttal immediately after the close of defendant's evidence in that regard during the month of August, 1917, and in surrebuttal immediately after the rebuttal testimony in that regard of the complainant, except as may otherwise be ordered by the Court.

It is further ordered that the complainant may take testimony in rebuttal between October 1st and October 15th, 1917, and that the defendant may take testimony in surrebuttal between October 15th, 1917 and November 1st, 1917, at such times and places as they may respectively indicate by ten days' notice to opposing counsel.

It is further ordered that the above set forth times designated for taking testimony may be varied by consent of counsel, which shall have the same effect as an order entered by this Court when entered upon the record before the Commissioner.

It is further ordered that a competent stenographer shall be furnished by each party to the Commissioner who shall be under the direction and supervision of the Commissioner, and such stenographer shall furnish four copies of the testimony as soon as
67 possible after the taking of each portion thereof, one for each of the parties and two for the commissioners.

PER MR. CHIEF JUSTICE WHITE.

April 30, 1917.

(Endorsed:) Supreme Court of the United States, October Term, 1917. Term No. 27, Orig. State of North Dakota vs. State of Minnesota. Order appointing a Commissioner. Filed April 30, 1917.

And afterward, to-wit, on the 24th day of May and the 5th day of June, A. D. 1917, and the 20th day of April, A. D. 1918, appearances were entered for the defendant as follows, viz:

68 *Order for Appearance.*

Supreme Court of the United States, October Term, 1916.

Original, No. 27.

STATE OF NORTH DAKOTA, Complainant,

vs.

STATE OF MINNESOTA, Defendant.

The Clerk will enter my appearance as Counsel for the Defendant.

(Name) CHARLES R. PIERCE,
(P. O. Address) 518 *Met. Bank Bldg., Washington, D. C.*

NOTE.—Must be signed by a member of the Bar of the Supreme Court of the United States. Individual and not firm names must be signed.

Endorsed: Supreme Court U. S. October Term, 1916. Term No. 27 Original. Appearance for Defendant. Filed May 24, 1917.

69 *Order for Appearance.*

Supreme Court of the United States, October Term, 1916.

No. 27, Orgl.

STATE OF NORTH DAKOTA, Complainant,

vs.

STATE OF MINNESOTA, Defendant.

The Clerk will enter my appearance as Counsel for the Defendant.

(Name) CHARLES E. HOUSTON,
(P. O. Address) *Wheaton, Minn.*

NOTE.—Must be signed by a member of the Bar of the Supreme Court of the United States. Individual and not firm names must be signed.

Endorsed: Supreme Court U. S. October Term, 1916. Term No. 27, Orgl. Appearance for defendant. Filed June 5, 1917.

69a *Order for Appearance.*

Supreme Court of the United States,

No. 27, Original Action.

STATE OF NORTH DAKOTA, Complainant,

vs.

STATE OF MINNESOTA, Defendant.

The Clerk will enter my appearance as Counsel for and as Attorney General of the State of Minnesota.

(Name) CLIFFORD L. HILTON,
(P. O. Address) *State Capitol, St. Paul, Minn.*

NOTE.—Must be signed by a member of the Bar of the Supreme Court of the United States. Individual and not firm names must be signed.

Endorsed: Supreme Court U. S. October Term, 1917. Term No. 21 Orig'l. Appearance for defendant. Filed April 20, 1918.

70 And afterwards, to-wit, on the 6th day of December, A. D. 1918, the motion and stipulation to open and file the record, &c., were filed in words and figures following, viz:

Supreme Court of the United States.

Original Action, No. 27.

THE STATE OF NORTH DAKOTA, Complainant,

vs.

THE STATE OF MINNESOTA, Defendant.

Now comes the State of North Dakota, the complainant herein, and herewith respectfully requests your Honorable Court for leave to file the record herein and the motion herein to open up said record and print the same, as presented in said motion.

WILLIAM LANGER,
Attorney General;
HARRISON A. BRONSON,
Assistant Attorney General,
Solicitors for the State of North Dakota.

JOHN LIND,
M. H. BOUTELLE,
I. C. PINKNEY,
Of Counsel.

71 In the Supreme Court of the United States.

Original Action, No. 27.

STATE OF NORTH DAKOTA, Complainant,

vs.

THE STATE OF MINNESOTA, Defendant.

Notice of Motion.

To the State of Minnesota:

You will please take notice that complainant herein, The State of North Dakota, by its solicitors will move the Court on Monday the 16th day of December, 1918, to file, open up and print the record in the above entitled action in the manner and form set forth in the Motion hereto attached.

WILLIAM LANGER,
Attorney General;
HARRISON A. BRONSON,
Assistant Attorney General,
Solicitors for the State of North Dakota.

JOHN LIND,
M. H. BOUTELLE,
I. C. PINKNEY,
Of Counsel.

72 In the Supreme Court of the United States.

Original Action, No. 27.

THE STATE OF NORTH DAKOTA, Complainant,

vs.

THE STATE OF MINNESOTA, Defendant.

Motion.

Now comes the complainant, the State of North Dakota, in the above entitled cause by its solicitors, and herewith moves the Court as follows:

1. That the record herein be filed and the testimony be opened.

2. That the testimony and Exhibits in such record, excluding certain of the Exhibits hereinafter mentioned, be printed under the direction of the clerk of this Court and under the rules of this Court.

3. That the Exhibits set forth in the Stipulation, a copy of which is hereto attached, marked Exhibit 1, and referred to in such stipulation as Statement "A," be printed under the direction of the clerk, and under the rules of this Court.

4. That the Exhibits set forth in said Stipulation, and referred to as Statement "B" be considered part of the record herein for purposes of reference only, in accordance with the terms of said Stipulation.

5. That Defendant's Exhibit 116, a map, be combined with defendant's Exhibit 7, a map, for purposes of reproduction and
73 printing, under the rules of this Court, in accordance with the terms of said Stipulation.

6. That all state laws and records of legislative proceedings returned with the record herein and not transcribed into the testimony be considered part of the record for purposes of reference only and be not printed, pursuant to said Stipulation.

7. That the cost of printing the record herein be by order of this Court divided between the State of North Dakota and the State of Minnesota and that each be required to pay to the clerk of this Court its proportion of the record herein produced or made by it, the same to be determined by the clerk of this Court.

This motion is based upon all the proceedings had in this cause, and upon the statement and argument hereto attached.

WILLIAM LANGER,
Attorney General,
HARRISON A. BRONSON,
Assistant Attorney General,
Solicitors for the State of North Dakota.

JOHN LIND,
M. H. BOUTELLE,
I. C. PINKNEY, *Of Counsel.*

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EXHIBIT 1.

Supreme Court of the United States.

(Original Action. No. 27.)

THE STATE OF NORTH DAKOTA, Complainant,

vs.

THE STATE OF MINNESOTA, Defendant.

Stipulation Respecting Exhibits.

It is hereby stipulated:

1. That all of the exhibits offered in evidence by the respective parties upon the taking of the testimony herein before the Honorable Wallace B. Douglas, Commissioner, which are numbered and described in "Statement A" hereto annexed, are a part of the record herein and may be reproduced and become a part of the printed record herein as prepared by the Clerk under the rules and directions of the Court.

2. That all of the exhibits so offered in evidence before said Commissioner, which are numbered and described in "Statement B" hereto annexed, are a part of the record herein and shall as such accompany and be a part of the return to this Court by said Commissioner, but need not be reproduced as a part of the printed record,
but shall nevertheless be referred to by the parties, and con-
75 sidered by the Court as in all things a part of the record herein.

3. That defendant's Exhibit 116, map showing different classes of state lands, may, for the purpose of reproduction and printing by the Clerk, be combined with defendant's Exhibit 7, and not printed as a separate exhibit.

4. That all state laws and legislative proceedings or records, offered in evidence and not already transcribed into the testimony, are a part of the record and shall accompany and form a part of the return by said Commissioner to this Court, but need not be reproduced in the printed record; but shall nevertheless be referred to by the parties and considered by the Court, as in all things a part of the record herein.

5. That the record herein, consisting of eight separate volumes of typewritten matter, the pages numbered from 1 to 3426 inclusive, together with the exhibits therein and in this stipulation mentioned and described, including the proceedings, motions and objections in such record, is all of the testimony and proceedings taken and had before the Commissioner; that said Commissioner may certify the same to this Court as the complete record herein.

6. That in entering into this stipulation complainant does not waive the right to make such motion as it may be advised respecting the expense of printing and reproducing of the record; but this stipulation shall not be construed as in any manner a consent or agreement on the part of the defendant to pay any of the expense of printing the record or reproducing any of the exhibits; nor as an
76 agreement on the part of the complainant so to pay, except as the rules or orders of this Court may provide.

Dated July 30th, 1918.

WILLIAM LANGER,
Attorney General of North Dakota;
HARRISON A. BRONSON,
Assistant Attorney General of North Dakota;
M. H. BOUTELLE,
JOHN LIND,
I. C. PINKNEY,
Attorneys for Complainant;
CLIFFORD C. HILTON,
Attorney General of Minnesota;
JOHN E. PALMER,
Assistant Attorney General of Minnesota,
Attorneys for Defendant.

77 EXHIBIT 1.

Statement "A."

Complainant's Exhibits.

Ex. 1. Map (Same as attached to bill).
Ex. 5. Map Drainage channels.
Ex. 6. Cross section Boise de Sioux.
Ex. 35. County Auditor Richland County Assessment flooded lands.
Ex. 36. " " " " " " "
Ex. 37. " " " " " " "
Ex. 38. " " " " " " "

(35 to 38 inc.) are already in record in full).

Ex. 49. Cross Section R. R. Bridge and portion of cut off.

Defendant's Exhibits.

Ex. 1. Mandamus proceedings.
Ex. 2. Map and Plan 2nd Mus. State Ditch (includes Ex. 2*a*).
Ex. 5. Report of Legislative committee.
Ex. 6. Large Contour Map Drainage area.
Ex. 7. Map County and Judicial Districts.
Ex. 28. Map outlet area Lake Traverse.
Ex. 43. Cross Sections.
Ex. 44. " "
Ex. 72. Precipitation records.

Ex. 73. Map Mustinka flood plane.
Ex. 75. Map Lake Traverse and Boise de Sioux drainage area.
Ex. 76. Precipitation chart Red Riv. drainage area.
Ex. 77. " " Lake Traverse Drainage area.
Ex. 29. Profile White Rock Road.
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Statement "B."

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Ex. 107. Government plat.
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Ex. 117 to 117F, Inc. Climatological Data South Dakota.
Ex. 118 to 118G, " " " North Dakota.
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Chapter 221 General Laws of Minnesota 1893.
Chapter 164 General Laws of Minnesota 1895.
Ex. 119 to 119H, Inc. Climatological Data Minnesota.

Office Supreme Court, U. S. Filed Dec. 6, 1918. James D. Maher, Clerk.

83 And afterwards, to wit, on the 16th day of December, A. D. 1918, the following entry appears of record, viz:

No. 19, Original.

THE STATE OF NORTH DAKOTA, Complainant,

vs.

THE STATE OF MINNESOTA.

The motion for leave to file open and publish testimony herein and for a division of expense of printing the record was submitted to the consideration of the Court by Mr. Frank Lyon in behalf of counsel for the complainant, and by *by* Clifford L. Hilton and Mr. John E. Palmer for the defendant.

December 16th, 1918.

And afterwards on the 23d day of December, A. D. 1918, the following entry appears of record, viz:

84 Supreme Court of the United States, October Term, 1917.

No. 19, Original.

STATE OF NORTH DAKOTA, Complainant,

vs.

THE STATE OF MINNESOTA.

On consideration of the motion for leave to file, open and publish the testimony taken herein,

It is now here ordered by the Court, that the said motion be, and the same is hereby, granted.

It is further ordered that the motion for an order dividing the expense of printing the record herein be, and the same is hereby, denied without prejudice.

Per MR. CHIEF JUSTICE WHITE,
December 23, 1918.

(Endorsed:) Supreme Court of the United States, October Term, 1918. Term No. 19, Orig'l. Order. Filed Dec. 23, 1918.

85 VOL. 1.

Appearances:
For the Complainant:
William Langer, Attorney General;
H. A. Bronson, Ass't Attorney-General;
M. H. Boutelle,
John Lind,
I. C. Pinkney,
Solicitors and of counsel for Complainant.
For the Defendant:
Lyndon A. Smith, Attorney-General;
John E. Palmer, Ass't Attorney-General;
Charles E. Houston,
Solicitor and of counsel for Defendant.

Pursuant to the order of the Supreme Court of the United States, dated, April 30, 1917, and pursuant to the stipulation of the parties duly entered into, I, Wallace B. Douglas, the duly appointed Commissioner by such order to take testimony in this action, did sit in the retiring room of the House of Representatives in the Capitol at St. Paul, Minnesota, on the 11th day of September, A. D. 1917, and proceed to perform the duties prescribed by said order and thereby vested in my by calling upon the parties to proceed with the production of the testimony to be taken by them in this action.

Messrs. William Langer, Attorney General of North Dakota, H. A. Bronson, Assistant Attorney General of North Dakota, and M. H. Boutelle, John Lind and I. C. Pinkney appeared on behalf of Complainant, and Messrs. Lyndon A. Smith, Attorney General of Min-

nesota, John E. Palmer, Assistant Attorney General of Minnesota, and Charles E. Houston appeared in behalf of Defendant.

86 Thereupon the following stipulation was made, to wit:

The Complainant offers the following stipulation. That it is agreed that the stipulation of record in this case filed with the Clerk of the United States Supreme Court may be amended by advancing the time for the taking of the testimony of the parties as therein atipulated three months and that the commencement of the taking of the testimony before Commissioner Douglas on behalf of the Complainant may begin this 11th day of September, 1917, the parties now being present before such Commissioner for that purpose, and that the 4th paragraph of the said stipulation of record may be amended by changing the words "July and August," therein so as to read "August and September" respectively.

The following stenographers were designated by the respective parties, Mr. C. C. Wattum for Complainant and George Schnepper for the Defendant.

Thereupon the attorneys for Complainant announced they are ready to proceed and John E. Palmer announced that he wished to make certain objections and motions in behalf of the Defendant before any testimony was taken on the part of the Complainant. There being no objection, the following objections and motions were made, to wit:

State of Minnesota objects to the receiving of any evidence under the bill of complaint herein, for the reasons:

1st. That it appears on the face of said bill of complaint that the matters set forth therein do not constitute a controversy between the State of North Dakota and the State of Minnesota justiciable in this court under the Constitution.

2nd. That it appears on the face of said bill of complaint that no property rights of the State of North Dakota are affected by the matters alleged; and that the controversy, if any exists, is between private land owners and the State of Minnesota and that the State of North Dakota is in fact only lending its name to said individuals for the redress of alleged private wrongs and injuries.

87 3rd. That it appears on the face of said bill of complaint that the drainage of water through the Mustinka state ditch to the territory of North Dakota alleged to have been injured and being injured is only such water as naturally is cast upon said territory.

4th. That it appears upon the face of said bill of complaint that if the Mustinka state ditch operates at all to the damage of the territory in North Dakota alleged to be injured it so operates only in time of flood and such injury, if any, is damnum asbque injuriam under the doctrine of Jackson vs. United States, 230 U. S. 1, and Kubbins vs. Mississippi River Commission, 241 U. S. 351.

5th. That the bill of complaint is multifarious in that it seeks both equitable relief by way of injunction and legal relief by way of a judgment for damages.

The State of Minnesota further moves that the complainant be compelled to elect whether it will proceed in an equitable suit for an injunction or an action at law for the recovery of damages; and if it elects the latter the State of Minnesota objects to any proof thereunder as not within the original jurisdiction of this court.

State of Minnesota further moves that this cause be dismissed for want of equity appearing upon the face of the bill of complaint.

(Complainant's Exhibit 1 is Marked.)

Mr. Boutelle: For the purpose of explaining the testimony of the first witnesses to be called, the complainant will offer in evidence Complainant's Exhibit 1, reserving the qualifying evidence for a later point in these proceedings.

Mr. Palmer: The defendant does not, by permitting the use of the map, Complainant's Exhibit 1, in any manner concede that said map is a correct or accurate representation of the territory and other matters thereon purported to be shown, and defendant reserves the objection that said map is not a correct or accurate representation of the matter thereon purported to be shown or the territory therein mapped.

88 PETER G. SMITH, being duly sworn in behalf of complainant, testified as follows:

Examined by Mr. Bronson:

Q. Mr. Smith, how old are you?

A. 61.

Q. Where do you live and what has been your business for the past 36 years?

A. I live in North Dakota; I have been a farmer.

Q. Are you the owner of the Northwest quarter of Section 10?

A. Yes, sir.

Q. And the West half of the Northeast quarter and Lots 3 and 4, comprising about 112 acres, in Section 15, Township 130, Range 47, Richland county?

A. Yes, sir.

Q. When did you secure or acquire title to the Northwest quarter of Section 10?

A. Well, I filed on the land in 1880, I didn't get title of it until a couple of years later, I think; that is, on the Northwest quarter.

Q. Have you lived on this Northwest quarter of Section 10 as your home and operated it as a farm for the past 36 years?

A. Yes, sir.

Q. When did you secure or acquire title to this 112 acres in Section 15?

A. That was about 1890.

Q. How far south is this Northwest quarter of Section 10 from where the Rabbit river flows into the Bois de Sioux river?

A. It is about a mile and a quarter south.

Q. Does this land you mentioned in Section 15 border upon the Bois de Sioux river upon the west?

A. Yes, sir.

Q. Likewise, does this land in the Northwest quarter of section 10, lie within a half a mile of the Bois de Sioux river on the west?

A. Yes, sir.

Q. You may state whether or not the Milwaukee railroad runs in a north and south direction about a mile and a half west of your land, the Northwest of 10?

A. Yes sir, it does.

89 And about when was this railroad constructed and laid?

A. About 1884.

Q. You may state whether or not the Great Northern railroad company, its right of way, runs in an easterly and westerly direction within about half a mile of your land in section 15?

A. Yes, sir, it does.

Q. And about when was this road laid or constructed?

A. About 1888.

Q. You may likewise state whether or not the road commonly known as the Soo railway runs within about a mile south of this land in Section 15?

A. Yes, sir.

Q. And in an easterly and westerly direction?

A. It does.

Q. And about when was this laid or constructed?

A. About 1888, same time as the Great Northern run through there.

Q. You may state about how many miles these lands you have described are north of the state line between North and South Dakota?

A. Why, it is about ten miles.

Q. About how far are these lands south of Wahpeton, North Dakota?

A. 12 miles south.

Q. What is the frontage of this land in Section 15 upon the Bois de Sioux, approximately?

A. It is a half a mile.

Q. You may state whether or not the Bois de Sioux river flows in a northerly direction from where the Rabbit river empties into it and into the Red River of the North at Wahpeton, North Dakota?

A. Yes, sir, it does.

Q. You may state whether or not this territory between Wahpeton and the state line between North Dakota and South Dakota, this territory lying adjacent to the Bois de Sioux river on the easterly side of the river or the westerly side of the river, in Minnesota or North Dakota, has been commonly termed among old settlers and is commonly known as a portion of the Red River valley?

90 A. Yes, sir it has.

Q. You may state the general nature of this land adjacent to the Bois de Sioux river between Rabbit river and the state line as to its character, whether level prairie or otherwise, nature of the soil, etc?

A. It is level farming land; some of it is used for hay land.

Q. At the time you settled there in 1881, to what extent were these lands in this valley from the Rabbit river along the Bois de

Sioux down to the state line, south to the state line, settled up or farmed?

A. Well, it was all taken and some of them wasn't living there, yet most of the land was taken up, a good share of it was farmed.

Q. Do I understand you to say that at this time, in 1881, these lands were quite well taken up?

A. It was all taken up, yes, sir, very near all. There might have been a few pieces but only a very few.

Q. And being farmed at that time?

A. It wasn't much farmed at that time, just starting to farm. Some of them broke a little and what was not broken was used for hay land.

Q. When you speak of farming, you mean what?

A. Well, breaking farm land or hay land, either one.

Q. Breaking up and plowing?

A. Yes, sir.

Q. Putting into grain?

A. Yes, sir.

Q. Raising some hay?

A. Yes, sir.

Q. Usual farming operations?

A. Yes, sir.

Q. Include cutting hay also in farming?

A. Yes, sir.

Q. When was the village of Fairmount established, if you know?

A. In 1884.

91 Q. And you live how far from the village of Fairmount?

A. About four miles.

Q. During the years that you have lived in this valley and on this farm, you may state to what extent these lands in this valley between the Rabbit river on the north and the state line on the south were subject to overflow through the waters of the Bois de Sioux?

A. That is before the——

Q. Before the year 1915?

A. Why, they wasn't subject to overflow only in the spring of the year when the snow went off.

Q. And what years or in every year?

A. No, not every year; it is about, I should say, about six times, six springs that it overflowed.

Q. During those years up to 1915?

A. Yes, sir.

Q. Have you any recollection of the year 1881?

A. Yes, sir.

Q. And what was that known as among the settlers in that valley?

A. Known as about the highest water around there; it was in the spring of the year.

Q. Do you have any recollection of the year 1897?

A. Yes, sir.

Q. What was that commonly known among the settlers with reference to climate conditions?

A. It wasn't as high water as it was in 1881.

Q. Was it or wasn't it a winter of considerable snowfall?

A. Yes, sir.
Q. This refers to the winter of 1896 and the spring of 1897?
A. Yes, sir.
Q. Does your recollection of the years we are talking about up to 1915 from the year 1881 serve to indicate 1881 and 1897 as years of exceptional flood conditions?
A. Yes, sir, they was a little higher then than most of the
92 time.
Q. And what was the condition in 1881, stating it briefly?
A. Well, it was all water around there then, the river banks north was damned up so the water couldn't get through and it backed up there.
Q. And in that year were these lands that you have described, mentioning in particular the lands in Section 15, overflowed with water?
A. Yes, sir.
Q. What time of the year?
A. In the spring of the year, in April; first part of April or last of March some time.
Q. And for how long a period of time?
A. About six to eight days.
Q. And what did you do with that land that year?
A. I didn't own it in 1881.
Q. Was it in farm that year, or do you know?
A. It was prairie land.
Q. The Northwest of 10 that year, any water on that?
A. Yes, sir, some out on that.
Q. Was that farmed by you that year?
A. Part of it was.
Q. What part of it?
A. The north part, I had it broke up, and the rest I was making hay on it.
Q. You used all that land that year?
A. Yes, sir.
Q. And in the year 1897, after that, was or was not there flood conditions that spring?
A. Yes, sir.
Q. And did that overspread likewise the land in that territory?
A. Yes, sir.
Q. And for how long a period of time?
A. About the same, about six or eight days.
93 Q. And what about farming operations that year?
A. Got all put in, the land was in good shape for seed.
Q. And was the crop raised there that year?
A. Yes, sir.
Q. As I understand it, during those years up to 1915, when flood conditions existed it lasted generally, as you say, how long?
A. From six to eight days.
Q. Were there any years, Mr. Smith, other than those mentioned where you had flood conditions?
A. There has been a few years, I don't remember just the dates.

Q. Anything to the extent of 1881 or 1897?
A. No, sir.
Q. That is, up to the year 1915?
A. Not so high, no, sir.
Q. For instance, in the year 1908, were there some flood conditions existing for a while in this territory?
A. Well, there was some, I guess, but mine wasn't under water that year.
Q. Have you some recollection of the conditions existing in 1908 when flood waters covered some territory in this valley?
A. Yes, sir.
Q. And in that year you say your land was not affected?
A. No, sir.
Q. What land was affected?
A. It was further south, the banks are lower there.
Q. You may state whether or not there is a bridge across the river, and was there then, over the Bois de Sioux?
A. Yes, sir, on the north line of my land, Section 15.
Q. State whether or not during the flood conditions in 1908 this bridge became impeded with refuse and obstructions?
A. Yes, sir, it did.
Q. And you have some land south of that?
A. Yes, sir.
94 Q. And then had it on the Bois de Sioux river?
A. Yes, sir.
Q. How long did the high water conditions exist then?
A. I don't know, I didn't pay much attention to it. It wasn't over my land.
Q. Do you recollect of their removing the obstructions at the bridge?
A. Yes, sir.
Q. What happened after they removed them?
A. The water went down a good deal after they removed them.
Q. Do you recollect whether or not the land to the south of you was cropped?
A. Yes, sir, I think it was.
Q. Crops raised?
A. As I don't know how much crop they did raise south of there, I couldn't say.
Q. During the years you have lived there, Mr. Smith, from 1881 up to 1915, just state generally the character and nature as to the banks, bed and channel and direction of this Bois de Sioux river between the Rabbit river and the state line on the south?
A. Why——

Mr. Palmer: I think we will object to that, the witness has not shown himself competent to testify, he is not an engineer or surveyor.

Mr. Bronson:

Q. As you observed it.

A. As I observed it the bank was higher the further north you go, and the river current runs north a strong current all summer.

Q. During the years you have lived there you have been up and down this valley more or less?

A. I have several times, yes, sir.

Q. Your trading point is what?

A. Fairmount.

Q. You had occasion to observe the farming conditions in this valley?

A. I have, yes, sir.

Q. And the flooding conditions in this valley from time to time as they existed?

A. Yes, sir.

95 Q. You may state whether or not during these years you have lived up there, up to the year 1915, there has been any year,—if so, state when—when it was not possible to plant, sow, plow or harvest grain or to cut tame crops of hay or wild crops of hay on these lands you have described?

A. No, sir, there has not; it was every year harvested and so forth.

Q. This land in Section 15 particularly, do I understand you to say that you worked that every year up to 1915?

A. Yes, sir.

Q. As long as you had it?

A. Yes, sir.

Q. And have you made any similar observations about any lands to the south of you?

A. Well, south I didn't pay much attention to the lands there, some years probably they didn't work it.

Q. Lands right next to you on the south?

A. Yes, sir, right next to mine they worked them same as I did mine.

Q. You have observed that during these years?

A. Yes, sir.

Q. Now, in these years that you mentioned, 1881 and 1897, when the waters were over the land, how about putting in a grain crop?

A. You could seed there as easily as other places. It dried off right away; the ground was in good shape for seeding.

Q. Crops were raised just the same?

A. Yes, sir.

Q. You were on this land in the year 1915 and making your home on this Northwest of 10, and during the year 1916?

A. Yes, sir.

Q. You may state whether or not these lands in Section 15 were prepared for crop in the spring of 1915?

A. Yes, sir, they was in the spring of 1915.

Q. And to what extent were they prepared for crop and what kind of crop?

A. It was all put into wheat. I had 10 acres of barley, the rest was all in wheat.

96 Q. And when did you put it in?

A. Put it in—I couldn't just say the date it was, early in the spring, April some time.

Q. And what were the flood conditions there in the early spring, if any?

A. There wasn't any in the early spring, ground was in good shape.

Q. And during that year did flood conditions occur?

A. Yes, sir.

Q. About when did you have some high water?

A. It was about the 1st of July when it started.

Q. And how did it come in?

A. Come in gradually from the river rising.

Q. The Bois de Sioux river?

A. Yes, sir.

Q. The Bois de Sioux river overflowed its banks?

A. Yes, sir.

Q. Which way did the water come from?

A. From the south.

Q. How long did it continue coming up?

A. I couldn't say, for a couple of weeks or month, something like that.

Q. A couple of weeks to a month?

A. Yes, sir.

Q. What was standing on the land at that time, were ther- crops on the land?

A. There was wheat mostly, some barley.

Q. Just what shape was the crop in?

A. Good crop, fine crop.

Q. And to what extent was the land overflowed in Section 15?

A. It was very nearly all, a little to the northwest that was not overflowed.

Q. And about when was the highest flow stage reached?

A. Well, I couldn't say; along the latter part of July sometime.

97 Q. And about how much water was over this land?

A. Why, the deepest part was probably about two feet.

Q. And about how wide was it, how wide was the stream there at your place from the Bois de Sioux westward?

A. In some places quarter of a mile and some places clear over.

Q. And what observations did you make as to the conditions south as you could see them?

A. You couldn't see out, all water south of me, couldn't see nothing.

Q. And this continued until the fall or how long?

A. Yes, sir, until fall; it was all wet there in the fall.

Q. Did you make any crop off it that year?

A. I took a crop off of about 10 acres of it.

Q. What shape generally was this valley then in the summer of 1915 on towards the fall?

A. It was wet, couldn't get onto the ground at all.

Q. Overflowed with water?
A. Most of the time, yes, sir.
Q. That is, from July onwards?
A. Yes, sir.
Q. Did you happen to observe whether or not there were any crops, any farms south of you in cultivation?
A. Yes, sir.
Q. What observation did you make as to the grain standing there?
A. Yes, sir, I saw grain standing there in water, that is all you could see of it.
Q. That is all?
A. Yes, sir.
Q. Now, how deep was the water further south, if you know?
A. Well, further south I think it was deeper, because the banks are lower and the water would naturally be deeper.
Q. You lived toward the northerly end of this tract that was flooded in 1915?
A. Yes, sir.
Q. Are there any lands to the north of you that were flooded in 1915?
98 A. Not very much, there might have been some, I believe, two or three rods from the river bank.
Q. That is towards the river?
A. Yes, sir, not back at all.
Q. Now, this year 1915 you took off some crops, did you?
A. About 10 acres of what that I cut.
Q. Off of Section 15?
A. Yes, sir.
Q. Northwest of 10 where you live, was that flooded that year?
A. No, sir.
Q. During the time these waters were backing up, during the time this flooded condition existed, where did the water come from and which way was the current?
A. The water came from the south, current running north, strong current all the time.
Q. At this time in July or when this flood condition existed you may state whether or not the lands at the confluence or where the Rabbit river flows into the Bois de Sioux, were they overflowed?
A. No, sir, there was no land overflowed then.
Q. During 1915 and 1916?
A. No, sir.
Q. Now, what is the general character of the banks and channel, as you observed them, at the place where the Rabbit river flows into the Bois de Sioux and just north of there?
A. They are a good deal higher, higher banks all along.
Q. What is the effect sometimes in the spring when the winter snows melted and spring rains came as to the channel at the Bois de Sioux where the Rabbit river flows into it?
A. The channel get- filled up with snow in the winter time and it backs the water up, the water don't get through.

99 Q. That is for how long a period?

A. Six or eight days, just as soon as it cuts through the snow the water goes down.

Q. That has been the condition existing for years?

A. When we have those floods.

Q. That is, in the spring of the year?

A. Yes, sir.

Q. When you have floods in the spring of the year?

A. Yes, sir.

Q. In the fall of 1915 were these lands in this valley plowed or not plowed, or could they plow them or couldn't they?

A. No, they couldn't plow them in the fall of 1915; too wet to plow, couldn't get on them.

Q. Did you plow your land in Section 15?

A. No, sir.

Q. Too wet to plow?

A. Yes, sir.

Q. In the spring of 1916 did you put these lands in Section 15 into crop?

A. No, sir.

Q. Why didn't you?

A. It was too wet, couldn't get on them.

Q. What made it wet?

A. The river, water from the river came up.

Q. These flood conditions you were talking about?

A. Yes, sir.

Q. And in the year 1916 did you have some more flood conditions?

A. Yes, sir.

Q. And about when did it come on?

A. It was about the 1st of—along in May sometime they started.

Q. And came up in the same manner as 1915?

A. Yes, sir.

100 And overspread your land?

A. Yes, sir.

Q. Did you notice it overspreading the lands to the south?

A. Yes, sir.

Q. And the extent of the flood extended up to about your farm northward?

A. Yes, sir.

Q. How long did they stay there that summer?

A. It stayed most all fall, all summer.

Q. Water overspreading the land?

A. Yes, sir.

Q. And with relation to 1915, how were the flood waters in 1916, higher or lower?

A. Higher.

Q. Still higher in 1916?

A. Yes, sir.

Q. These waters came from the south or the north?

A. From the south.

Q. Now, what were the crop conditions on the land flooded in 1916, any crops put in or raised?

A. No, sir.

Q. How about hay lands?

A. Well, hay land, they were all spoiled in 1916, I didn't cut no hay off of it at all.

Q. Did this wet condition continue through the fall and winter?

A. Yes, sir.

Q. How about the spring of 1917, this past spring?

A. Early in the spring it was too wet to get on but later, along about May, last May and June, it dried off so I could do a little work on it.

Q. And on this land in question here, in 1917, what farming operations have you conducted there, in section 15?

A. In 1917?

Q. 1917, this year?

A. I put in about 30 acres, 10 acres of barley and 20 of flax.

101 Q. What has been the condition this year, 1917, with relation to whether it was a dry season or a wet season?

A. It has been a dry season.

Q. Why didn't you put in the rest of it in 1917?

A. It was too late.

Q. The ground too wet?

A. No, sir, not wet lately. It was wet early so we couldn't get on it early. I worked on it up until June some time and I thought it was getting too late and didn't put in any more.

Q. If I understand you correctly, during 1915 you cut a small portion of wheat?

A. Yes, sir.

Q. Nothing in 1916?

A. No, sir.

Q. And a little portion in 1917?

A. Yes, sir.

Q. You observed the condition of the farms in this valley this year, what shape they are in, to the south of your farm, too?

A. There hasn't been much farming done on it.

Q. What condition are the farm lands in this valley south of Rabbit river, including your farm, south of it?

A. Growing up to cattails and big weeds and stuff. Ground is dry now, they have been plowing some of it.

Q. Do I understand that some of these lands grown up to cattails fermerly were cultivated to grain?

A. Yes, sir, mine were all cultivated to grain before and it is all grown up to cattails, most of it.

Q. And this extends southward?

A. Yes, sir.

Q. Not northward?

A. No, sir.

Q. But towards the south?

A. Yes, sir.

102 Q. Along this valley on the North Dakota side towards the state line south?

A. Well, some over on the Minnesota side too.

Q. You observed that condition existing this year?

A. Yes, sir.

Q. And with relation to some of the farm building-, did you notice anything about those?

A. I haven't noticed any only a building close to the Soo track standing in water that has been vacated.

Q. In 1916?

A. Yes, sir.

Q. Formerly was occupied?

A. Yes, sir.

Q. By a farmer?

A. Yes, sir.

Q. And now vacated?

A. Yes, sir.

Q. And the land surrounding it is in what condition?

A. It is same as the other, all full of them cattails.

Q. What are those cattails?

A. A kind of flag weed, I don't know what they call them—it will grow up three or four feet high.

Q. Where do they grow generally, what kind of land, wet land or dry land?

A. Wet land that has been flooded.

Q. During the years you have lived there, Mr. Smith, farming these lands, to what extend have the crop returns been on these lands involved, for instance, Section 15?

A. Why, I have had wheat there that went 20 bushels to the acre.

Q. Go ahead and name some of the other crops you have raised and grown.

A. I have had corn, got corn 50 or 60 bushels to the acre and oats the same.

Q. That is, during the years up to 1915?

A. Up to 1915.

103 Q. Now, as to the character of the soil itself, state that.

A. That is a black loam, clay subsoil.

Q. You may state whether or not this soil in this valley that we have talked about is of a similar general nature as it extends throughout the whole Red River valley?

A. Yes, sir, very near the same all through.

Cross-examination.

By Mr. Palmer:

Q. Do I understand you to say that you know that the valley of the Bois de Sioux, the lands lying adjacent to this Bois de Sioux river from the confluence of the Rabbit river south to the state line, is just the same in character as the lands along the entire Red River valley?

A. No, not the same, I didn't state that,

Q. They are not the same, you say?

A. Not in level; the character of the land is very near the same, it is a little lower.

Q. Did you ever examine the lands lying adjacent to the Bois de Sioux river south from Fairmount and down to the state line?

A. No, I have never examined the land.

Mr. Boutelle: What do you mean by examining, Mr. Palmer; observed or analyzed?

Mr. Palmer:

Q. Isn't it true that the lands lying adjacent to the Bois de Sioux river from Fairmount south to the state line are filled with boulders and smaller stones and is generally a rocky area of land?

A. No, sir, not any more than it is further west.

Q. Then further west, after you leave the western bank of the Bois de Sioux valley, the land is just as rocky and they are just as many boulders as there are along the lands in the Bois de Sioux valley from Fairmont south to the state line?

A. There probably ain't quite so many further west.

Q. You don't undertake to swear to that then, Mr. Smith?

A. No, I am not very much acquainted with the land. I have never been over it very much; I know there is some boulders all through there.

Q. Your market town is Fairmount?

A. Yes, sir.

104 Q. Which is about how far from your home farm, the Northwest quarter of Section 10?

A. It is a mile west and three miles and a half south to the town line, this village line.

Q. What occasion have you had to make an examination of the lands from Fairmount along the Bois de Sioux valley to the state line?

A I haven't made an examination of the land.

Q. And you do not undertake to testify in regard to that either, Mr. Smith?

A. Not to examining it, no, sir. I have been over the land but I have never examined it. I have been through the country.

Q. Do you say that in 1881 all of the lands from where you lived south along the Bois de Sioux valley to the state line were taken up?

A. No, sir, I didn't say that they all was, most of them I said.

Q. How many farms were there in that area in 1881?

A. I couldn't say, I didn't know how many there was there.

Q. The Northeast quarter of Section 21, Township 129, Range 47, which lies about seven miles south of your place and adjacent to the Bois de Sioux river, when was that homesteaded?

A. I don't know. I couldn't tell you, I don't know when it was homesteaded; but I know when I went through there I wanted to take up some more land but I couldn't, it was all taken up.

Q. You couldn't find any more that you wanted, that is what you mean, isn't it?

A. No, sir, that could be taken up; it was all taken up.
Q. You say the land is lower to the south from your place?
A. Yes, it is a little lower, the banks are lower along the river.
Q. And it is more subject to overflow as you get further south towards the state line?
A. I think it is more subject to overflow.
Q. And you wanted some of that land instead of what you did get?
A. I wanted some for hay land. Well, I wanted to get more land, I thought I would get a couple of pieces.
Q. This land in Section 21 that I have already referred to, do you know anything about when it was taken up?
A. No, sir, I do not.
105 Q. Take the Southeast quarter of Section 21, in Township 129, of Range 47, do you know anything about when that was taken up?
A. No, sir.
Q. Take the Northwest quarter of Section 21, same township and range, do you know anything about when that was taken up?
A. No, sir, I do not; I was not acquainted down that way much.
Q. Take the Southwest quarter of 21?
A. No.
Q. Being the same section I mentioned, do you know anything about when that was taken up?
A. No, sir.
Q. Now, as a matter of fact, Mr. Smith, none of these lands in Section 21 were taken up until the period from 1891 to 1896, were they?
A. Why, I couldn't say. When I went down there I went to the land office and wanted to get some land out through there and they told me it was all taken; there wasn't any, that is all I know about it.
Q. That is all you know about it?
A. Yes, sir.
Q. Did you see any farm buildings in Section 21?
A. Not at that time, there was soon after that, farm buildings through there.
Q. Did you see any farm buildings in Section 28, in Township 129, of Range 47, at that time?
A. I couldn't say, I don't know just where the sections were, I didn't know the lines.
Q. Did you see any farm buildings on Section 33, of that township and range?
A. Not that I know of. There is buildings down there, I don't know just what sections they were on.
Q. Those buildings have been there ever since?
A. I don't know; I haven't paid much attention since. I don't go down there very often, once in a while I go through.
Q. Are there in fact any farm buildings at all on Section 28 now?
A. I couldn't say, I haven't been down there that way for quite a while.
106 Q. Or 21?
A. No, sir, I don't know.
Q. Or 16?

A. I don't know who owns the land now.

Q. Or 9 or 4 in that township south of you?

A. No, sir, I don't know who owns the land; I don't pay no attention to them places.

Q. You haven't paid any attention to them in years past?

A. Not to the buildings, no, sir.

Q. Have you paid any attention to their state of cultivation and the crops raised about there?

A. I have been through there a few times, that is the only way I have paid attention to it.

Q. Will you venture to swear they had any crops there, those lands I have mentioned last, in any of these years you have spoken of?

A. I wouldn't swear to that, they wasn't cropped, they was making hay on it. It was all hay land what wasn't cropped through there. I have made hay there myself.

Q. And they are making hay there this year, 1917?

A. I don't know, I haven't been down there this year, I don't know.

Q. Did you go down there last year, 1916?

A. No, sir.

Q. Did you go down there in 1915?

A. No, sir, I wasn't down through close to the river. I have been through and west from the river.

Q. You don't know whether they made hay there or not?

A. I know they didn't; it was all water through there, couldn't get down.

Q. Do you know whether they made hay on some parts of it, that land along there?

A. I don't know, I don't think they did, not along the river.

Q. This year you don't know anything about it at all?

A. I haven't been down there this year at all, no, sir.

Q. As I understand you, your home farm, the Northwest of 10, Township 130, Range 47, has not been flooded in 1915 or 1916?

A. No, sir.

107 Q. And you have had your crops the same as usual?

A. Yes.

Q. The water didn't reach it in 1916?

A. No, sir.

Q. The water didn't reach it in 1915?

A. No, sir.

Q. Now, you say you had no crop on this land of yours in Section 15 in 1916?

A. No, sir.

Q. Did you have any on your land in Section 10?

A. Yes, sir.

Q. What did you have?

A. I had wheat and oats, corn.

Q. How much did your wheat go, in 1916 I am speaking of?

A. Well, I don't know; about 12 bushels, I think or 10, something like that; about 10 bushels.

Q. About half a crop?

A. Yes, sir.

Q. How much did your oats go?
A. Oh, oats went 25 bushels.
A. About half a crop?
A. Yes, sir.
Q. How much did your corn go in 1916?
A. The corn was fair. I don't know just—I didn't husk it out, I cut it for fodder most of it.
Q. You cut it for fodder?
A. Yes, sir.
Q. Isn't it true, Mr. Smith, that there was almost a failure of crops in 1916, in that entire territory on both sides of the Bois de Sioux river?
A. No.
Q. Both east and west?
A. I had a good deal of marquis wheat in, that was pretty good.
108 Q. I am not asking you about yours, I have already asked you about that. How about the crop generally in that territory, wasn't it practically a crop failure?
A. No, there was some crop, of course, it wasn't a good crop.
Q. What was the matter with it?
A. It got rusty, rust came in and hurt it.
Q. Ground wet?
A. No, sir.
Q. 1916 was a dry year?
A. No, it wasn't no dry year; it was wet enough in the spring.
Q. Know anything about the rainfall the year 1916?
A. No, sir, I don't.
Q. In that area?
A. No, sir.
Q. Don't you know, as a matter of fact, that it was the highest that was ever known or recorded?
A. No, sir, I don't; I didn't pay any attention to it.
Q. You don't think there was any more rain than usual in the year 1916?
A. Why, no, not—I don't think there was much more.
Q. About an ordinary year?
A. Yes, sir.
Q. And they were not crop failures on account of wet conditions?
A. No, sir.
Q. In that area both east and west for say 20 or 30 miles from your place?
A. Well, as far as I know, it was—the only trouble was that the rust hurt it.
Q. There were not any wet conditions to speak of in 1916?
A. No, sir, not on the land wet, away from the river there was not.
Q. How was it east of the river, out in Traverse county and Wilkin county, Minnesota?
A. I didn't pay much attention to it, I suppose it was all right.
Q. You don't know anything about it?
A. No, sir, not particularly.

Q. You say you did have some crop on land in Section 15 in 1916?

A. No, sir.

109 Q. Not anything whatever?

A. No, sir.

Q. Have any hay?

A. No, sir; well, I did cut a little hay along late in the fall but it was damaged a good deal and was not worth hardly anything.

Q. In the fall of 1915 you say it was too wet to plow?

A. Yes, sir.

Q. Where?

A. The whole of it on Section 15.

Q. How about your land in Section 10?

A. I plowed most all of that.

Q. Was it pretty wet that fall?

A. It was a little wet, it wasn't bad, I plowed it all.

Q. How did that fall compare with the fall of 1914 as to wet conditions?

A. It might have been a little wetter, it wasn't much, about the same.

Q. And 1913?

A. Well, I couldn't say, about the same, I done the work.

Q. You don't remember very distinctly then about the conditions in 1915 as compared with former years?

A. Why, no, not distinctly, but I think the land was about the same. You could work it all same as other places.

Q. How about the entire area, say for 20 miles or more, east and west of your place in the fall of 1915, isn't it true that the fall of 1915 was extremely wet and practically nobody did any plowing?

A. It was a little wet but I think the most of them done the plowing, the biggest share of them.

Q. Do you know anything about it?

A. I know I done mine.

Q. That is all you know?

A. I know the neighbors done theirs. I didn't pay no attention back but I know they did a good deal.

110 Q. Do you know anything about the rainfall in 1915?

A. No, sir, I do not.

Q. Any part of the year 1915?

A. No, sir, I didn't keep track of it.

Q. You say there is one building just south of the Soo bridge down next to the Bois de Sioux river that is vacant?

A. Yes, sir, that is vacant there and there is more of them further south, I don't know just where they be.

Q. How many more further south?

A. I couldn't say how many, I haven't been through the country, I don't know how many.

Q. How do you know there are any?

A. I don't know only what I have heard. I heard folks say there was and I saw nothing around there going by. That is all I know about it. I didn't examine it any.

Q. What land is that where this building is vacant south of the Soo bridge?

A. What kind of land, you mean?
Q. What is the description of it?
A. I don't know just——
Q. What section is it in?
A. I don't know, 22, I believe. I think it is, I wouldn't say positively, I think it is 22.
Q. Was that land cropped every year right along up to 1915 from 1881?
A. No, sir, not from 1881 it wasn't.
Q. When was it settled, when were these buildings built on it?
A. They have been there four or five years, I suppose, something like that; it was used for hay land before that all the time.
Q. Then as I understand it, there were no buildings ever built on it until four or five years ago?
A. On that piece, yes, sir.
Q. And it was never cultivated but was cropped for hay?
A. It was cultivated four or five years, something like that.
111 Q. Prior to the past four or five years it wasn't cultivated at all?
A. Not cultivated, only hay land.
Q. When you say farmed or cultivated you mean the cutting or wild hay, natural grass?
A. Yes, sir.
Q. You call that cultivation?
A. I don't know as that would be called cultivation. Cultivation, I suppose, would be plowing and breaking up.
Q. What you mean by saying cultivated farms south to the state line from your place, you mean they are either plowed up and cropped or the wild hay cut on them?
A. Yes, sir.
Q. Have you any interest in the result of this suit?
A. Yes, sir, I have.
Q. What interest have you, please?

Mr. Boutelle: That is objected to as not proper cross-examination and immaterial.

A. I have got a claim in. That is, what my claim is, you mean?

Mr. Palmer:

Q. Yes.
A. I have a claim in for $1,500 damages to crops.
Q. Whom did you put that claim in to?

Mr. Boutelle: Same objection, not proper cross-examination, and the further objection that under the stipulation and understanding of counsel the issue of damages is not to be taken up at this time.
Mr. Palmer: I will state to counsel that it is not my purpose to go into the quantum of damages or the items of it but only to show the interest, if any, of the witness in the result of the suit.
Mr. Boutelle: He has already stated that. What the fact is as to whom he put his claim in to, what has that to do with it?

Mr. Palmer:

Q. Please answer the question.

Mr. Boutelle: I think I will instruct the witness that he need not answer the question. Your answer may be that under advise of counsel you did not answer.

Mr. Palmer:

Q. Do you refuse to answer that question?
A. Well, what was your question? Whom I give that claim in to?
112 Q. Yes.
A. I don't know now, but I think it was Mr. Pinkney, I couldn't say for sure.
Q. Mr. Pinkney, one of the counsel for the complainants in this case, is that true?
A. I don't know, I couldn't say just who it was, I think it was his brother, though.
Q. You gave it in to Mr. Pinkney's brother?
A. Yes, sir.
Q. And he is the brother of the Mr. Pinkney who is one of the counsel for the complainants in this case?
A. Yes, sir.
Q. And is it your understanding that if damages are recovered in this case that you will receive a part of the damages recovered?

Mr. Boutelle: Same objection, not proper cross-examination and immaterial.

Mr. Palmer:

Q. What is your answer?
A. Well, I expect to get something out of it if we win the case.
Q. That is, you expect to get all or a part of your $1,500 if a recovery is had in this case by the State of North Dakota?
A. Yes, sir.
Q. Have you contributed any funds for the purpose of carrying on this case on the part of the complainant?

Mr. Boutelle: Same objection, not proper cross-examination.

Mr. Palmer:

Q. Just answer.
A. Yes, sir, I have.
Q. How much have you contributed?

Mr. Boutelle: Just a moment. Judge Pinkney, I do not want to assume the whole responsibility or appear to be arbitrary but I think this examination has proceeded to a point where it is entirely uncalled for and if your views agree with mine I shall instruct the witness not to answer.

Mr. Pinkney: I concur with your views.
Mr. Palmer: I have asked the question.
Mr. Boutelle: The witness may answer that question under advice of cousel that he declines to answer.

113 Mr. Palmer: All right. Do I understand, Mr. Smith, that you refuse to answer that question?
A. Well, if the counsel orders me not to I will refuse, yes, sir.
Q. But so far as you are concerned, you are perfectly willing to answer it?

Mr. Boutelle: Same objection.

Mr. Palmer:

Q. Are you or are you not?
A. I don't care to answer it if I don't need to.
Q. We will leave it this way, that you have contributed some funds to the carrying on of this case?
A. Yes, sir.
Q. On the part of the complainant, the State of North Dakota; that is correct, is it?
A. Yes, sir.
Q. Now, does any part of your land in Section 15 extend over into the State of Minnesota?
A. No, sir.

Redirect examination.

By Mr. Boutelle:

Q. The Bois de Sioux river is the outlet of Lake Traverse in this section we are dealing with, isn't it?
A. Yes, sir.
Q. The flow of the water is toward what direction?
A. Towards the north.
Q. And the Bois de Sioux flows into the Red River of the North at what point?
A. At Wahpeton.
Q. You have lived in this territory since 1881?
A. Yes, sir.
Q. Have you lived there, and by living there I mean, have you resided there during all of those years?
A. Yes, sir.
Q. And have been on that ground during all of those years?
A. I have been off once in a while for a visit but I resided there, that is my home, I have been there working the land.
114 Q. And in a general way have had the opportunity to observe the conditions?
A. Yes, sir.
Q. You have seen these periodic, what you call those periodic spring overflows?
A. Yes, sir.

Q. In years previous to 1915?

A. Yes, sir.

Q. Are you sufficiently familiar and can you tell what is the general area of the overflow during those previous years there? If you can't, say so.

A. No, I couldn't, not exactly.

Q. Can you say whether the area of the periodic overflow was greater to the south near the state line or to the north?

A. It is greater to the south.

Q. Have you observed the character of the banks of the Bois de Sioux river from the point where that river passes the southerly state line?

A. No, I have not. I have been through there a few times, I never paid much attention.

Q. You have seen the river?

A. Yes, sir, I have seen it.

Q. What is the character of the river banks as compared with the surrounding land high or low banks?

A. The banks are lower the further you go south.

Q. And how far north does that low bank condition extend?

A. Up as far as my place; they get higher the further north you go.

Q. You are how many miles south of the mouth of the Rabbit river?

A. About a mile and a quarter south.

Q. Then the high banks you are referring to, if I understand you correctly, begin about two miles or a mile and a half south of the Rabbit river?

A. No, they begin from my place, further south from my place, about from the Great Northern track, higher all along there.

Q. Is there any appreciable difference between the level of the land and the level of the banks of the Bois de Sioux in the southern portion?

A. I don't know how that is, I couldn't answer that question.

115 Q. But the general condition of these periodic overflows in all these years previous to 1915 were as you have stated, the area being greater in the southern than the northern portion?

A. Yes, sir.

Q. Have you ever observed any condition of overflow of the lands north of the mouth of the Rabbit river?

A. Not much. In the spring of the year when the banks are full of snow there it would spread out a little and run around there.

Q. That is, when the river channel was choked with ice and snow?

A. Yes, sir.

Q. What was the longest time that you ever knew the water in any of these years previous to 1915 to be on these lands?

A. Not to exceed 8 or 10 days. 10 days would be the longest anyway. I don't know as it would be that long.

Q. What was the greatest depth of the water at any of those times that you observed?

A. I don't know, I never measured the depth but down towards the river around 3 or 4 feet deep.

Q. Then tapered off, I suppose, as the land raises?

A. Yes, sir.

Q. Previous to 1915 had there ever been a time in your observation when the overflow conditions continued through the year?

A. No, sir.

Q. So that 1915 was the first year that the lands were overflowed and the overflow conditions continued through the year?

A. Yes, sir.

Q. And in 1915, in the fall of the year, the waters were still over the land?

A. Yes, sir.

Q. Or part of it?

A. Yes, over part of it.

Q. And did it freeze up that fall in that form?

A. Yes, sir, they froze that way.

116 Q. And thawed in the spring?

A. Yes, sir.

Q. And in 1916, what were the conditions as compared with 1915, was there a greater overflow or less?

A. Why, it was greater along in the summer.

Q. And were the lands in 1916, did they continue to be overflowed until late in the fall?

A. It was along in the fall some time.

Q. Can't you make it a little more definite than that?

A. Why, yes, I think in October some time, I think, when the water went off.

Q. So that during 1916 the water stayed on the land throughout the entire crop season up to the fall?

A. Yes, sir.

By Mr. Bronson:

Q. Speaking of your land in Section 15, is it level prairie or rolling land?

A. It is level prairie.

Q. What kind of soil?

A. Black loam.

Q. Any rocks there?

A. There is a few there, yes, sir.

Q. What kind of subsoil?

A. Clay.

Q. And when you speak of black loam, is that a gumbo land or——

A. No, sir, it is not a gumbo; black, sandy loam, sand mixed with it, no gumbo at all.

Q. This land in 15, is it all broken up or partly broken or how?

A. It is all broken only 15 acres of it, I have for hay land.

Q. That you have retained for hay land?
A. Yes, sir.
Q. Was that land on this Section 15 that you mentioned that is not capable of being plowed?
A. No, sir, it has all been plowed.
117 Q. All capable of being farmed and cultivated?
A. Yes, sir.
Q. All capable of raising crops if the water conditions are not present?
A. Yes, sir.

Recross-examination.

By Mr. Palmer:

Q. The water conditions were not present in 1917?
A. No, sir; well, it was wet in the spring.
Q. But it is just as dry at the present time as it ever was?
A. Yes, sir.
Q. And just as capable of being cultivated as it ever was?
A. Yes, sir, cultivated but damaged some by those cattails and stuff that has grown on, makes it hard to work it.
Q. But so far as water conditions are concerned it is just as capable of cultivation now as it was at any time?
A. Yes, sir.
Q. Where is this 15 acres that you left for hay?
A. It is in the north part.
Q. Next to the river?
A. Next to the road right along the north line.
Q. Is there a road along the north line?
A. Yes, sir.
Q. Graded?
A. Yes, sir.
Q. How high is that grade?
A. Two feet.
Q. Any bridge through it?
A. A bridge across the river.
Q. A bridge any other place?
A. Not any there, there is one two miles south.
Q. But is there any bridge west of the Bois de Sioux river over to the bank of the valley?
A. No, sir.
118 Q. No opening whatever?
A. No, sir.
Q. And there is a grade two feet high?
A. Some places two feet.
Q. And you left the land that was along south of the grade for hay land?
A. Yes, sir.
Q. You have never attempted to cultivate it?
A. Never cultivated it, no, sir, never worked it. It was a little handier so I left it, close to the road so that I could get at it.

Q. What land were you talking about when you answered the questions that Mr. Boutelle put to you, your own land?
A. Yes, sir.
Q. You wasn't undertaking to testify to all of the land south of your land clear down to the state line along the Bois de Sioux river?
A. No, sir.

Redirect examination.

By Mr. Bronson:

Q. Counsel asked you a question or two about the conditions in the fall of 1915, and plowing done by neighbors around there as well as the plowing done by yourself. To what extent if at all did the water conditions of 1915 overflowing Section 15 affect your land in the Northwest of Section 10, as far as plowing is concerned?
A. Didn't affect it at all as far as plowing was concerned.
Q. You could plow all of the Northwest of 10 the fall of 1915?
A. Yes, sir.
Q. And did plow it?
A. Yes, sir.

(At this time recess was taken until 1:30 P. M.)

Sept. 11, 1917, 1:30 p. m.

Hearing resumed pursuant to adjournment.
All parties present.

119 CHARLES R. PINCKNEY having been called as a witness on behalf of the complainants was duly sworn and testified as follows:

Examination by Mr. Bronson:

Q. Your name is Charles R. Pinckney?
A. Yes, sir.
Q. How old are you?
A. Fifty-five.
Q. Where do you live?
A. Fairmount, North Dakota. Richland County.
Q. How long have you lived there?
A. Fifteen years.
Q. Do you own some land near this town of Fairmount?
A. I do.
Q. Describe that land, please?
A. I own the Northeast of Twenty-eight, the southeast of twenty-one, the East Half of the Southwest of 22 and fraction 1, aggregating 117 acres in the last two parcels; also three fractions aggregating 119½ acres in 27 and 80 acres in the Northwest of Twenty-eight, all in 130-47.

Q. All this land totals how many acres approximately?
A. 637, I believe.
Q. How long have you owned this land?
A. I have owned 557 acres of it for fifteen years. The last eighty I have owned four years.
Q. How much of this land is adjacent to or borders upon the Bois de Sioux river, the frontage on the same?
A. In the 557 acres which I call the old farm there is about a mile of river frontage.
Q. What has been your business for these fifteen years past?
A. Farmer.
Q. Of this land in question?
A. Yes, sir.
Q. In what shape has this land been during the years that you farmed it up to 1915, as far as cultivation—was it broken up?
120 A. In a high state of cultivation—all of it broken up.
Q. During the years you have farmed there up to the year 1915 this land has been cropped to what sort of crops?
A. The usual crops raised on a Red River Valley farm, wheat, oats, flax, barley, corn and tame grass.
Q. Have you held any position in this township or in the state of North Dakota besides that of being engaged in farming—any township position?
A. Yes, sir.
Q. What position?
A. On the Board of supervisors for the last nine years.
Q. Have you had occasion from time to time to visit this territory shown on this Exhibit 1?
A. Yes, sir.
Q. In yellow, between the Rabbit River on the north and the state line on the south?
A. Yes, sir.
Q. Have you become somewhat familiar with the lands in that locality?
A. I have.
Q. Now you may state to what extent, generally speaking, the lands between the Rabbit River on the north and the state line of North Dakota on the south, on the North Dakota side, were under a state of cultivation or being farmed including up to the year 1915 from the time when you came there?
A. I should say close to ninety per cent.
Q. In speaking of those lands did that have reference to this territory shown in North Dakota on this Exhibit 1 under the designation, generally speaking, of yellow color?
A. Yes sir.
Q. You have seen this map before?
A. Yes sir.
Q. Now, generally speaking, what crops were raised on this land—the nature of the crops—the kind and character, during these years up to the year 1915?
A. Those just mentioned as having raised on my land, wheat, oats, corn, flax, barley, tame grass, some wild hay.

121 Q. You spoke of ninety per cent of the lands being used in the territory described, what do you mean by that?

A. I mean possible all but ten per cent. of it was in either pasture, tame grass or some of these grain crops.

Q. Now the character of the soil, generally speaking in this territory is what?

A. Very fertile black loam.

Q. How does it compare with the soil to the west or east?

A. It is the best soil in the whole valley.

Q. Why is it the best soil?

A. Because it lays smoother; there are fewer pot holes and it is easier to work, and because in any dry year we can beat them from twenty to fifty per cent in crops. Heavier soil.

Q. During the period of time you have resided on this land and have farmed it has there been any period or season when this territory was overflooded or inundated?

A. Yes sir.

Q. Under what condition would it be overflooded?

A. On one occasion it was flooded from the flowage of the spring freshets early in the spring, the melting of the snow.

Q. What year?

A. 1906 to the best of my recollection.

Q. Describe generally the flooded conditions of that spring and how long—the character of the flood?

A. A heavy snowfall had just passed off. There was twenty-four or thirty-six hours of high south wind, and suddenly the river began to rise and overflooded extensive territory.

Q. This territory you have described along the Bois de Sioux river?

A. Yes sir.

Q. Some of your lands adjacent to the Bois de Sioux river?

A. Yes sir.

Q. To what extent?

A. I should say three hundred acres.

122 Q. For how long a period of time?

A. About three to five days.

Q. In what season of the year?

A. Early in April,

Q. And were or were not these lands that year in crop?

A. Yes.

Q. Crop raised on them?

A. Yes sir.

Q. Wheat, barley, oats and so forth?

A. Yes sir.

Q. Did you have occasion to observe whether or not during that year other lands in your vicinity were likewise overflooded?

A. Yes sir.

Q. And whether or not crops were raised that year?

A. Yes sir.

Q. Any other season you can mention?

A. Yes sir.

Q. Well, if you recollect what year?

A. 1908.

Q. Just describe generally what overflooded condition existed in the year 1908?

A. The river was dammed up two miles north of Fairmount where what is known as the high bridge crosses the river. There was then a low old bridge there and the river was dammed up by reason of the debris and the water had no passage to the north.

Q. And when did this condition exist?

A. About the 1st of July.

Q. Were there crops in that year?

A. Yes sir.

Q. What was done when this flooded condition came on?

A. Those interested in these lands began to look about for the source of the trouble.

Q. Including yourself?

A. Yes sir.

123 Q. And found the bridge obstructed?

A. Yes sir, and we tore up some loose planks, in fact a whole section, and took timbers with chains and hitched horses to them and hauled out the debris that had lodged under the bridge and let the water flow on.

Q. What happened to the water?

A. The water flowed on rapidly.

Q. And how long——

A. And in less than twenty-four hours 150 acres of that land I have described was freed of water.

Q. Any crops raised on this land that year?

A. Yes sir.

Q. Harvested?

A. No, not all of them.

Q. Why not?

A. There was some they couldn't harvest because it occurred too near harvest time to get binders on them.

Q. Well, to what extent—you spoke about 150 acres being cleared within twenty-four hours?

A. There was apparently 50 acres more of that land flooded, yes, 100 acres.

Q. For how long a period of time?

A. I think the whole period probably lasted from fifteen to twenty days, according to the best of my recollection.

Q. And what proportion of the land that year you didn't crop or cut the crop off from?

A. I should say fifty per cent of that land that was flooded.

Q. Have you in mind any other year when you have had unusual flooded conditions up to the year 1915?

A. None since I have been there.

Q. What have been the usual conditions during the period of years you have lived there up to 1915 concerning the melting of winter snows and the passing off of spring rains as to flooding lands along the Bois de Sioux River?

A. The usual conditions are that in a very brief period—from

three to five or six days after the snow passes off we go on our land and seed it.

124 Q. Do I understand you to state that during the years you have lived there up to 1915 the only unusual flooded conditions that have existed have been those covering the years you have mentioned?

A. Yes sir, up to 1915.

Q. Has there been any year during the years you have lived there when your land as well as the land north and south of you has not been tilled and cultivated as you have described?

A. None whatever.

Q. To what extent had the country been developed as far as improvements and buildings are concerned—the general state of cultivation of the lands in this district affected up to 1915?

A. It was a highly improved section of county I should say.

Q. And how compared as to the territory to the west not included within this district overflooded?

A. Fully equal to any in west of it.

Q. That is as to the character of the soil—the state of cultivation?

A. I have stated I think that we had the best soil there—better than the soil to the west of us.

Q. Now in the years that you have mentioned when the Bois de Sioux river overflooded you may state when this occurrence took place, where the water came from and in what direction it flooded?

A. The water came from the south and flooded towards the north.

Q. During the years you have lived on these lands and have farmed it there state generally the course of the Bois de Sioux and the character of the banks and the bed along the lands through which it passes, including your farm, lands to the north and lands to the south, just generally speaking?

A. The character of the Bois de Sioux is a sluggish stream flowing north. The characteristic of the banks is that they gradually grow higher as you go north, up to Winnipeg at least which is as far as I have been.

Q. Now with reference to this territory, you have already described the character of the developement of the territory and the lands as far as they have been cultivated and the nature of the same. Now with reference to any marsh or low lands in this territory, describe the same as far as they exist, if they be any?

125 A. There are no more marshes, in that territory than there would be in equal territory anywhere in the Red River Valley.

Q. Are there some?

A. Yes.

Q. State generally their character and where they are?

A. Well, they are generally, little narrow arms of the river bed that extend back in the land and people leave them for hay lands. Wild hay growing on them.

Q. Now your lands are about how far south of where the Rabbit River flows into the Bois de Sioux?

A. The middle or my farm where the section line devides it is four miles south of Rabbit River.

Q. You have visited the place where it flows into the Bois de Sioux?

A. Yes sir.

Q. And the character of the banks where the Bois de Sioux empties into the Red River of the north?

A. Yes sir.

Q. And with reference to the banks and stream north of Rabbit River as compared with those south is there any difference?

A. The banks are higher north of Rabbit River.

Q. This territory between the Rabbit River and the state line in North Dakota on the south has been termed by Mr. Smith as having been commonly known as the Red River Valley. Is that correct?

A. Yes sir.

Q. Now in the year 1915, were you likewise farming these lands?

A. Yes sir.

Q. And in the spring of the year what were the crop conditions?

A. Excellent.

Q. What was done?

A. Crops were all put in in fine shape.

Q. What crops on these lands involved here that you have described as owned by you?

A. Wheat, oats, barley, corn, tame grass, clover, timoth- and alfalfa.

126 Q. Did you have the same flooded conditions existing in the year 1915?

A. Yes sir.

Q. About when did those conditions commence?

A. Latter part of June.

Q. How did the water come along?

A. Came rushing up from the south in great volumes.

Q. For how long a period of time until it reached its apex?

A. I should say about the 20th of July.

Q. What shape was your crop in?

A. I had the finest prospect you ever seen.

Q. Grain mature that year?

A. Grain all headed out and corn waist high.

Q. What did the water do with respect to your farm?

A. It did it.

Q. How much did it overspread?

A. Four hundred acres.

Q. How deep did it become in the deepest place or on an average?

A. Well of course, from the river banks three to four feet deep nearly to the westerly edge.

Q. How much territory did it overspread westward from the Bois de Sioux?

A. Reached back about 250 to 280 rods.

Q. Have you some buildings on these lands?

A. Yes sir.
Q. Which are adjacent to this Bois de Sioux river?
A. Yes sir.
Q. How near did it come to these buildings?
A. About twenty rods.
Q. Describe these buildings, the condition of them?
A. In first class shape for farm buildings.
Q. Name them.
127 A. Barn 32 x 64, with harness room and lean-to 10 x 6, 16 foot post, all concrete stables and granary floors, and half the horse stable plank floors, tool shop 16 x 48, and scales in under the tool shed, hog house 12 x 48, cement floor in it, granary in the barn for the storage of some twelve or fourteen hundred bushels of oats, outside granary 10 x 28, and corn crib on the other side, same size, 10 x 28, hen house adjoining lean-to to the granary, a good dwelling house with a good basement under it, well and wind mill, and seventeen or eighteen hundred rods of good fence.
Q. What kind of fence?
A. About 1,100 rods of pig fence, woven wire, and about seven hundred rods of barbed wire, mostly four wires, with post every rod.
Q. Now, generally speaking, after these waters overflooded this land, as you have described, how long did that continue through the summer of 1915?
A. Continued practically the whole summer and fall of 1915. They receded somewhat late in the fall.
Q. Where did they come from?
A. From the south.
Q. What direction was the current?
A. North.
Q. You observed that did you?
A. Yes sir.
Q. What harvesting did you perform on these lands inundated, if any?
A. Yes, we harvested some of the crop on the extreme western part of the farm.
Q. How much?
A. I should say about forty acres on the south side and about seventy acres on the north side, I think.
Q. Were these seventy acres and these forty acres part of the land that had been overflooded?
A. No sir, that never had been flooded or we wouldn't have cut the crops.
Q. Then these seventy acres and forty acres was land of yours farther to the west?
A. Yes sir.
128 Q. Of the land that had been overflooded by these waters?
A. Yes sir.
Q. How much crops did you harvest on those?
A. None.
Q. None at all?
A. No sir.

Q. Why?
A. You can't run a binder in the water. You have to have a boat to run in the water.
Q. Well, the crops that year were lost growing on those lands?
A. Yes sir.
Q. How many acres did you have covered?
A. A little over four hundred.
Q. In the fall what farming operations did you do as far as plowing is concerned or anything of that sort on this land that was inundated?
A. None whatever. You couldn't get on it that fall.
Q. State whether or not the water on some of the land remained throughout the winter?
A. It did.
Q. Frozen?
A. Yes sir.
Q. And in the spring of 1916 were any of these lands that you mentioned that were inundated put into crop?
A. No sir.
Q. Why not?
A. Still under water.
Q. Some part of it?
A. Yes sir.
Q. And the part that were not under water, why weren't they put into crop, that is the land that had been under water?
A. It was so wet that you couldn't get on to it.
Q. And in the fall of 1915 did you plow your land that had not been flooded?
A. Yes sir.
129 Q. And in the spring of 1916 did you put into crop that land that had not been flooded?
A. Yes sir.
Q. Now in the year 1916 did you have flood conditions existing again?
A. Yes sir.
Q. And about when did the flood start to come again—what month?
A. The latter part of April or early in May.
Q. And came from what direction?
A. Same direction.
Q. Was it greater or lesser than the year before?
A. It reached higher than it did in 1915.
Q. How long was it coming up? Just approximately?
A. I should say the rise continued until nearly the 1st of August.
Q. And how much land did it overspread in acres, generally speaking, of your land?
A. Four hundred and fifty.
Q. How deep did it become over your land?
A. Approximately the same as in 1915.
Q. And how near did it come to these buildings?
A. Came up within fifteen or sixteen rods of the barn.

Q. How wide was the stream over your land westward from the Bois de Sioux?
A. 290 rods or such a matter.
Q. And this continued in the fall?
A. Yes sir.
Q. You had waters there up until the fall of 1916?
A. Yes sir.
Q. And during that time in 1916 did you happen to observe any waters flooding from the north to the south?
A. No sir.
Q. Any crops raised on these lands in 1916?
A. No sir.
Q. That were inundated?
A. No sir.
130 Q. Now during the years 1915 and 1915 did you have occasion to observe other lands in the vicinity north and south?
A. Yes, sir.
Q. What was the general condition as far as those lands were concerned?
A. Same as my own. They were wholly worthless to the owners.
Q. How far did that condition extent south?
A. From the mouth of Rabbit River clear down to the lake.
Q. From the mouth of the Rabbit River down at least to the State line in North Dakota?
A. Yes, sir.
Q. And how wide was the stream as you observed it sometimes in the year 1915 in some places in this strip affected?
A. From a mile and a half to two miles wide.
Q. And to what extent were the highways or railroad tracks inundated either in the year 1916 or 1915 or both?
A. The area of highways that was rendered useless by being inundated or inundated at both ends was in the neighborhood of fifteen miles.
Q. How was communication obtained with the town of Fairmount by persons living in Minnesota?
A. They had to hoof it across on the railroad track or take a boat.
Q. And in 1915?
A. Same way.
Q. Are there any other towns near Fairmount or between Fairmount and White Rock, or elevator stations?
A. Yes, sir.
Q. What station?
A. Station of Blackmere.
Q. What condition was that in in 1915 and 1916?
A. Wholly surrounded by water.
Q. As I understand it, at that town there is an elevator station?
A. Yes, sir.
Q. How far is that from Fairmount?
A. Five miles.
131 Q. How far from the Bois de Sioux river?
A. I think something over a mile or a little over.

Q. And you observed yourself in 1915 and 1916 that the same was surrounded by water?

A. Yes sir.

Q. Doesn't the Milwaukee Railroad run through this station of Blackmere?

A. Yes sir.

Q. In what shape was the road bed of the Milwaukee?

A. Under water a good deal of the time.

Q. Now did you have occasion to observe on these lands in the territory affected other buildings and farm buildings surrounded by water?

A. Yes sir.

Q. In what direction from your lands, south or north?

A. North and south both.

Q. Describe generally the conditions as you observed them in 1915 and 1916 as far as waters around the buildings are concerned, whether there was any or not?

A. There was water around many such buildings.

Q. Can you enumerate any that you recollect?

A. Yes sir.

Q. Name one?

A. Mr. Bolton's buildings on 22 in 130; what are known as the Mitzke buildings—I think now the title is in one Swiven, in 33; also buildings known as the Caruther's buildings, owned by Mr. Ridell now, on section 9, I believe. If you want me to give them correctly all the way through I will have to refer to my records.

Q. Have you some records?

A. Yes sir.

Q. Can you refresh your recollection by referring to them?

A. I can enumerate all the buildings.

Q. Refer to your memorandum for the purpose of refreshing your recollection?

A. The last set of buildings I mentioned—Mr. Ridell's are in Town 129, Section 9. Then there are some buildings on Sec. 16, belonging to Mr. John F. Broderick, in 129; some buildings on 21, belonging to James A. Westerman—two sets of buildings
132 on the half section. This is also in 129. Buildings on Section 22, belonging to Orby W. Jones; buildings on 28 belonging to John A. Waddington; buildings on Section 32, belonging to Henry W. Briden; buildings on Section 33 belonging to Charles L. Baker.

Q. What township?

A. 129, all of these latter one-. And buildings in Section 34 belonging to A. Swanson. Also buildings of Mr. G. F. Lundberg in 34 were totally surrounded by water.

Q. Were those buildings in 1915 and 1916 more or less surrounded by water?

A. Yes sir.

Q. Showing you Complainants Exhibit 2, that is a photograph of whose buildings?

A. Mr. Bolton's buildings on 22-130-47.

Q. When was that taken?

A. That was taken I think somewhere the latter part of May or 1st of June, 1916.

Q. Does that photograph represent conditions as you yourself knew them to exist at that time?

A. Yes sir.

Q. And does it correctly portray the same?

A. Yes sir.

Q. Mr. Bolton's land is located where, Mr. Pinckney?

A. It is the northeast corner of the section where my land is in 22-130-47.

Q. I show you complainant's Exhibit 3 and ask you to state of what that is a photograph?

A. That is a photograph of the Southwest corner of what was then Mr. Schweiler's quarter on 22, right north of the quarter that is on the north side of the Soo tracks.

Q. When was that taken?

A. Same time.

Q. There seems to be some trees shown in this photograph?

A. Yes, sir, that is a little tree claim of ten acres.

Q. You may state likewise whether this photograph is a true representation of conditions existing at that time as you knew them?

A. Yes, sir.

133 Mr. Bronson: We offer in evidence Complainant's Exhibits 2 and 3.

Q. Do you know how deep the water was at that time around these buildings of Mr. Bolton's, for instance?

A. I should say close to two feet, possibly two feet and a half deep.

Q. Now in the year 1916 this flood condition continued until fall?

A. Yes sir.

Q. Waters receded somewhat?

A. Yes sir.

Q. You know as to what crops, if any, were harvested on any lands in that district during that year?

A. No crops harvested in any of that district in 1916.

Q. That was inundated?

A. No sir.

Q. How about hay?

A. There was no hay put up, unless it might have been a very infinitesimal fraction of the hay land.

Q. In this district that you have described is there any schoolhouse?

A. Yes sir.

Q. Just about where?

A. It is about a mile just west of the Milwaukee track and about a mile south of Blackmere, I believe.

Q. Do you know whether or not the district surrounding this school house was surrounded by water during these years?

A. It was.

Q. And do you know about how many students or children there were there at that school house?

A. Now it may possibly be two miles south—two miles south of Blackmere it is. The highways are traveled so little there.

Q. Now with reference to the location of this school in the territory involved you may state whether or not this school is located on Section 28?

A. It is.

134 Q. Of 129-47?

A. Yes sir.

Q. And in the years 1915 and 1916, I understood you to say this school was surrounded by water during these flood times?

A. Yes sir.

Q. Can you state whether or not school operations were carried on?

Q. The 1915 term was concluded before the flood conditions arose. In 1916 they were unable to carry on school there.

Q. Didn't carry on any?

A. No sir.

Q. Now in the spring of 1917, the past spring, you may state in what condition you- lands were in?

A. Very wet.

Q. And as to what was done?

A. Very little farming operations.

Q. Why not?

A. Couldn't get on them.

Q. The lands are not overflooded now?

A. No, we have had the driest season ever known. It hasn't rained the whole year except last Thursday.

Q. What have climatic conditions been?

A. Driest I have ever seen.

Q. What rains have you had?

A. We had one rains last Thursday, a little shower on the 14th of July, and that is the only rain or showers we have had the whole year.

Q. From the 1st of January?

A. Well, there might have been a couple of little showers in April. I think there was.

Q. But since the season began?

A. We haven't seen a drop of rain.

Q. Haven't had any rain since July 14th up until last Thursday?

A. No sir.

135 Q. What is the condition of these lands in this territory involved now and during this summer?

A. It is like one vast wilderness, cat-tails and foul weeds.

Q. Except some small areas?

A. Yes sir, that the farmers have gone in and plowed recently.

Q. You have observed conditions in this territory affected this year?

A. Yes sir.

Q. And to what extent these lands that have been flooded have been farmed?

A. They have not been farmed.

Q. Except in small portions?

A. Very small.

Q. Now have you visited as far south as this Lundberg farm?

A. Yes sir.
Q. And down to the State line?
A. Yes sir.
Q. And up to the Rabbit River?
A. Yes sir.
Q. All over that territory?
A. Yes sir.
Q. And for instance on the Lundberg farm which is the southern part of the district and just north of the South Dakota line, what farming operations, if any, has that gentleman carried on this year?
A. I think he has one little small patch there that he put into fodder corn late in the season.
Q. What section is that on?
A. 34, I believe.
Q. That is the place you mentioned a while ago where the foul weeds had made an island of his buildings?
A. Yes sir.
Q. And during 1915 and 1916 he had to approach his place by boat?
A. Yes sir.
Q. Marooned there as it were on a little knoll of ground?
A. Yes sir.
Q. You mentioned a while ago about some fence on you- own lands. I will ask you to state whether or not in the year 1916 anything happened to your fence?
136 A. It was almost totally destroyed by the flowing ice that froze up on the ground in the fall of 1915.
Q. What became of it?
A. It is laying there in a tangled mass, all rusted to pieces and the posts are broken off and scattered all over the farm.
Q. Now as to the comparative area flooded in the southern district, that is towards the state line, as compared with the northern district, is the territory affected in the southern district wider than that in the northern portion?
A. Yes sir.
Q. And about where does the flooded condition that you have mentioned in 1915 and 1916 cease as far as the territory is concerned on the north?
A. I think with what is known as the high bridge between Sections 10 and 15.
Q. That is near the Rabbit River?
A. Yes sir.
Q. Which flows into the Bois de Sioux?
A. Yes sir.
Q. What as to the flooded conditions, if any, existing north of the Rabbit River in the Bois de Sioux territory in 1915 and 1916?
A. None existed.
Q. In other words these flood conditions existed between the Rabbit River on the north and the state line on the south?
A. Yes sir.
Q. In North Dakota?
A. Yes.
Q. Now previous to these years 1915 and 1916 that you have de-

scribed, you may state whether or not there ever had been any time during the time that you have been there when these lands were inundated or flooded in that manner or to that extent or for that length of time?

A. No, they never were.

Q. And what was the longest period for prior years up to 1915 and 1916 to which these lands that you have mentioned in this territory involved were subject to flood or inundation?

137 A. During the spring freshets I should say from 5 to 7 days, with the exception of 1908 when the river was blocked at the bridge. Then, as I have stated, somewhere about twenty days.

Q. And when you removed the obstruction there the water went off immediately in 1908?

A. Yes sir.

Q. From your residence in this Red River Valley, Mr. Pinckney, you have seen at different times Lake Traverse?

A. Yes sir.

Q. You know where Lake Traverse is situated to the south of the Bois de Sioux?

A. Yes sir.

Q. You may state whether or not the Bois de Sioux is the outlet of Lake Traverse?

A. Yes sir.

Q. And flows north through this territory?

A. Yes sir.

Q. And were you at any time during the years 1915 and 1916 down to White Rock?

A. Yes sir, many times.

Q. That is somewhere near this outlet of Lake Traverse is it not?

A. Yes sir.

Q. And whether or not you made any observation as to where this water was coming from?

A. Yes sir.

Q. Where did you observe it was coming from in 1915 and 1916?

A. From the overflooded lake.

Q. Flowing north?

A. Yes sir.

Q. Did you ever observe any waters backing up southward over your lands in the years 1915 and 1916?

A. No.

Q. Which was was the current?

A. Always north.

Q. And which was were the waters flowing?

A. North.

Q. Now in these years of 1915 and 1916 what were the crop conditions, as far as the territory not inundated is concerned?

138 A. 1915 and 1916?

Q. Yes sir.

A. The whole country raised the biggest bumper crop in history in 1915 and 1916 wasn't so good a crop.

Q. In 1915 the territory west of the Bois de Sioux River was likewise farming territory?

A. Yes sir.

Q. And were crops raised, harvested and threshed that fall of 1915?

A. Why certainly.

Q. And likewise in the fall of 1916?

A. Yes sir.

Q. Were the conditions in 1915 and 1916, so far as rainfall was concerned greater than that of any preceding year as you observed it?

A. No.

Cross-examination.

By Mr. Palmer:

Q. What kind of a year was 1913?

A. A very good year as I remember it.

A. As to rainfall?

A. An average year.

Q. It was an average dry year?

A. About an average year, I should say.

Q. That is, it was average dry and average wet—it was neither wet nor dry?

A. I think I have stated it was about an average year.

Q. Then you wouldn't say whether it was either a wet or a dry year?

A. No sir.

Q. Did you experience any flooding of your lands or did you observe any flooding of the other lands in the Bois de Sioux valley in the year 1913?

A. No sir.

Q. There was no additional water came up from the south in the year 1913 over any previous year?

A. No sir.

139 Q. In 1912, would you say that was an average year?

A. It was a mighty good year, I know, for us for crops.

Q. It was neither a wet year nor a dry year?

A. There was abundant rainfall. We had magnificent crops. I did.

Q. You have the best crops there in wet years or dry years on your lands?

A. Well, of course, if the ground is properly worked we don't need a great amount of rainfall on our lands, because there are heavier soils and they don't dry out.

Q. Then you have better crops in dry years?

A. Apt to, yes.

Q. But in 1912 you had abundant rainfall and had your best crop?

A. Yes sir.

Q. Did you experience any flooding of your lands or observe any flooding of the lands around you in the Bois de Sioux Valley in the year 1912?

A. There was none.

Q. There was no additional water that came up from the south in 1912?

A. No sir.

Q. Over previous years?

A. No sir.

Q. Take the year 1914—I have asked you about 1913—was that a dry year or a wet year?

A. There was abundant rainfall. It was rather dry in the fall though—an excellent fall to get threshing and plowing done.

Q. It was neither a wet year nor a dry year take it all in all, Mr. Pinckney?

A. Well that is your summary of it.

Q. Well, I asked the question?

A. I think not.

Q. Did you observe any flooding of your lands or any flooding of the other lands in the Bois de Sioux valley in the year 1914?

A. Yes sir.

Q. What time of that year?

A. Late in the fall.

140 Q. Was your land flooded?

A. Yes sir.

Q. I think you stated that it was a most excellent fall for doing plowing?

A. I said late in the fall. We aim to have our plowing done before late in the fall.

Q. Then you did observe some flooding late in the fall of 1914?

A. Yes sir.

Q. How extensive?

A. Well, I think possibly there might have been twenty or twenty-five per cent of as much area flooded as was flooded in the summer of 1915.

Q. And it——

A. And it froze up early and stopped flooding conditions. Water don't flow when it is frozen.

Q. Where did the water come from?

A. From the south.

Q. Evidently from Lake Traverse?

A. Yes sir.

Q. Now the spring of 1915—was that a wet or dry spring?

A. It was very seasonable—rather drier I should say than wet.

Q. An average spring?

A. Yes sir, very favorable for farming.

Q. Did you observe any flooding of your land in the spring of 1915?

A. Not early?

Q. Did you prior to July?

A. Oh, yes, the river began to rise long before July.

Q. When did it begin to rise?

A. I couldn't give you the exact date. I should say it began to rise somewhere about the middle of May or maybe the 1st of May.

Q. You stated in your direct-examination that it was the last of June or the 1st of July?

A. That the flood conditions came.
Q. When did the water begin to rise in 1915 do you say now?
A. I don't think I could give you the exact date when the water began to rise, possibly the 1st of May, and it may have been the 15th of May.
141 Q. After you got your crops in?
A. Yes sir.
Q. Early in the spring you didn't observe any extraordinary amount of water coming up from the south from Lake Traverse?
A. No sir.
Q. Nor did you observe any extraordinary amount coming up until along the latter part of June or the 1st of July?
A. Oh, yes, the river was quite high.
Q. When did you observe the uncommon and unusual rise of the water?
A. As I have just stated.
Q. When?
A. From the middle of May to the last of May, according to the best of my recollection.
Q. And that continued until the 20th of July?
A. About that time.
Q. And do you know anything of the rainfall in 1915?
A. Yes sir.
Q. Was that average or unusual?
A. I should say no more than average up to the middle of July. It was uncommon heavy in the fall of 1915.
Q. It was unusually heavy in the fall of 1915?
A. Yes sir, I should say so.
Q. And there was a good deal of water on your land in 1915?
A. Yes sir.
Q. The fall of 1915.
A. Yes sir.
Q. And on the other lands in the Bois de Sioux valley as well?
A. Yes sir.
Q. And on the lands to the east over in Travers county, Minnesota—did you observe conditions over there in the fall of 1915?
A. I wasn't over a great portion of Travers county.
Q. Were you ever over any of it at all?
A. Oh, yes. I passed over the section near the river.
142 Q. What did you observe as to the farmers there being able to plow their lands in the fall of 1915?
A. It was difficult plowing because it was very rainy.
Q. And that was true say for twenty or twenty-five miles on both sides of the Bois de Sioux valley extending way out on the prairie?
A. I didn't inspect as wide a strip as that.
Q. So you are unable to state whether that was in general a wet, bad fall for doing fall plowing, Mr. Pinkney?
A. I think I might safely say it was a bad fall for doing plowing.
Q. Now in the spring of 1916 when did you first observe the unusual amount of water coming from the south—how early?

A. Very near the 1st of May, might have been a little earlier or a little later.

Q. And the water same from the south and flowed to the north?

A. Yes sir.

Q. That is the usual course of its flow?

A. Yes sir.

Q. At flood seasons or other seasons?

A. Yes sir.

Q. And how long did the water continue to come up that year?

A. I think it continued to rise a little later than it did in 1915—possibly close to the 1st of August it continued to rise.

Q. Do you know anything of the rainfall in the year 1916, beginning say with the late fall of 1915 and extending to the late fall of 1916?

A. We didn't have an excessive amount of rain in 1916.

Q. That was a comparatively dry year?

A. No, I shouldn't say comparatively dry. The rainfall wasn't excessive.

Q. Was it a very wet year, generally speaking?

A. I said the rainfall was not excessive.

Q. Did you ever look up the rainfall records to ascertain whether or not the rainfall in that area that year was excessive?

A. There are no records kept at Fairmount.

143 Q. I am speaking of the area generally?

A. No, I didn't.

Q. Do you know as a matter of fact that it was the highest amount of rainfall ever recorded in that area surrounding the Bois de Sioux Valley and in the Bois de Sioux Valley?

A. I do not.

Q. That would not be your recollection of it?

A. No, it did not appear so to me.

Q. You didn't get any crop on that land that year?

A. Didn't get any put in.

Q. Now the other portions of the valley there you say didn't get any crop?

A. Very little.

Q. And they didn't get any crop over in Travers county, Minnesota?

A. Well, I am not crop reported for Travers county. I couldn't say.

Q. Well, could you say?

A. I have stated 1916 was a poor crop year all over the northwest.

Q. Practically a crop failure in that area, was it not?

A. I don't know as it was characterized as a crop failure. Corn was very good, and there were isolated cases where they had a fair barley and wheat crop, but it was a poor crop year.

Q. What percentage of the average crops were harvested in the area surrounding the Bois de Sioux Valley in 1916?

A. Was harvested?

Q. Was raised—I will put it—that year—what percentage of the usual crop was raised that year?

A. I don't think there was over thirty per cent on a- average.

Mr. Boutelle: Do you include in that question inundated area or exclude it?

Q. Well, generally speaking through that territory it was about thirty per cent?

A. I mean for the whole Red River Valley.

Q. Well, the Red River Valley doesn't begin until you get up to Wahpeton?

A. I think it has been stated that this area in controversy
144 has been included in the Red River Valley, and I have been testifying to it as Red River Valley land.

Q. Well, it is Bois de Sioux Valley Land?

A. Technically it is, but it is generally known as Red River Valley land, all the way north from Lake Travers.

Q. It is, as I understand it, really all a prehistoric lake-bed?

A. Supposed to be.

Q. Supposed to and it did run clear down to Lake Travers, spreading out on each side east and west, and that is what you speak of as the Red River Valley?

A. Yes, sir.

Q. Did I understand you to say that there was no flooding of any lands north of the confluence of the Rabbit River with the Bois de Sioux River in 1916?

A. No, sir.

Q. There wasn't any at all?

A. No, sir.

Q. Did you go up to Wahpeton that year?

A. Yes sir.

Q. Did you pass through what is called the town of Wild Rice at the confluence of the Wild Rice with the Bois de Sioux?

A. Going to Wahpeton?

Q. Yes.

A. No sir, I don't see how you could. My recollection is that it is the first station south of Fargo.

Q. Do you know whether there was any flood conditions up there?

A. I do not.

Q. Do you know whether there were the highest floods on record at Fargo and Moorhead in 1916?

A. I heard there were very high floods there.

Q. And at Grand Forks and East Grand Forks.

A. I am not familiar with conditions up there.

Q. But you didn't mean to state that there was no flooding of lands along the Red River Valley in 1916 except down here in this Bois de Sioux valley?

A. I meant to the best of my knowledge.

145 Q. Well, about your information? Isn't it true that they had heavier floods there throughout the Red River Valley that season—isn't that a matter of common knowledge?

A. I don't know.

Q. You have no information about that at all?

A. No.

Q. Wasn't there a good deal of flooding from the Bois de Sioux river into the Wild Rice river in south of Wahpeton?

A. No sir.

Q. In the year 1916?

A. No sir.

Q. Were you up there?

A. Yes sir.

Q. When?

A. Many times.

Q. Any flooding over there?

A. No sir.

Q. Ever talk with any of these farmers in there to find out whether that was true?

A. I didn't go up there to talk about it and I didn't, but I observed it with by own eyes.

Q. It wasn't flooded over when you went up there?

A. No sir.

Q. What year did you come there?

A. I came there in 1902.

Q. Do your lands lie directly east of Fairmount?

A. Yes sir, the north half of the farm.

Q. The east half of the Southwest of 22 is part of that quarter which abuts upon the river?

A. Yes sir.

Q. Now in Section 27, the part which you own is that which abuts upon the river?

A. I own the whole river frontage in 27 except the north eighty rods. A little corner, sixteen acres belongs to another party.

146 Q. And eighty acres in 28, that would not abut upon the river?

A. No sir.

Q. What eighty is that?

A. That is the eighty where I now live, and joins the southeast corner of the townsite.

Q. That would be the north half of the Northwest quarter?

A. Yes sir.

Q. That is well away from the river and from this area that is marked yellow on the map?

A. Not very far away.

Q. Well it is far enough away so the water didn't actually get up to your buildings?

A. No sir, not to these buildings, on the norht half of the northwest off 28, but the buildings on the Northeast of 28 were almost reached by the flood.

Q. Which ones were you living in?

A. I was living in these on the North half of the Northwest of 28. I have a tenant on the other set of buildings.

Q. Your buildings on neither farm were injured by the water, were they?

A. No sir.

Q. Did you say you own some land in 21?
A. Yes sir, Southeast of Twenty-one.
Q. Well, that doesn't abut upon the river?
A. No sir, but it was more than half of it under water.
Q. Reached by the water you mean?
A. Yes sir.
Q. Now this fractional land you have described in Section 22, the west half of the Southwest quarter and lot 1, 116.23 acres?
A. 117.51 I think my deed calls for.
Q. At any rate it is the land in 22?
A. Yes sir, 130-47.
Q. When did you buy that lan-?
A. 1902.
Q. Do you know when it was *kon*esteaded?
A. I think in 1887.
147 Q. Did it have any buildings on it when you got it?
A. Yes sir.
Q. What did you pay an acre for it?
A. I paid $36.50 an acre for the entire tract in 1902.
Q. Now the land which you own in 27, that is the Northwest of the Northwest and the South half of the Northwest and Lots 1 and 2?
A. That is correct.
Q. That you bought in 1902?
A. Yes sir, for $36.50 an*d* acre.
Q. Did it have any buildings on it?
A. No sir.
Q. Got any on it now?
A. No sir.
Q. When was that homesteaded?
A. I don't recall. I think it was all about the same time.
Q. Wasn't it in 1889?
A. Might have been.
Q. Now your land in 28, that is the Northeast quarter and the North Half of the Northwest quarter?
A. Yes sir.
Q. You bought that in 1902?
A. Not all of it. The north half of the Northwest I bought in 1911 or 1912, I forgot which.
Q. Did that have buildings on it when you bought it?
A. Yes.
Q. Then there are two sets now?
A. Yes. One on the Northeast quarter of 28 and one *o*f the North half of the Northwest quarter.
Q. Both have the buildings when you bought it?
A. Yes sir.
Q. Was that homesteaded in 1893?
A. I couldn't tell. It must have been earlier than that.
148 Q. Do you know whether that was the date of the patent, 1893?
A. I am sure it must have been earlier than that,

Q. Now some four or five miles south of you on 22 you say are the buildings of Mr. Bolton?
A. No.
Q. That is 22 in your own town and range?
A. Yes.
Q. That is the tract of land south of the Soo Railway?
A. Yes sir. Part of Mr. Bolton's land is.
Q. How long had those buildings been there prior to 1915?
A. I should say some two or three years.
Q. Up to that time the land had never been build upon?
A. No sir.
Q. Who was cultivating it prior to the time the buildings were there?
A. Mr. Bolton.
Q. Where did he live?
A. In Fairmount.
Q. What did he use it for?
A. Grain.
Q. All for grain?
A. Yes sir.
Q. Clear down to the river's edge?
A. Yes sir.
Q. That year?
A. Yes sir.
Q. Prior to 1915?
A. Yes sir.
Q. 1908?
A. He didn't own it then.
Q. How long had he owned it prior to 1915?
A. I don't know.
149 Q. How many years did he cultivate it prior to 1915?
A. I think two or three or four.
Q. Prior to that time was it cultivated?
A. No, sir.
Q. What is its condition at the present time as to being wet or dry?
A. Same condition as the rest of the flooded land, and a great growth of cattails. Now it is dry, of course.
Q. And just as susceptible of cultivation as it ever was?
A. No.
Q. So far as water is concerned?
A. So far as water is concerned, but that is not all the damage it done to us.
Q. Are you interested in Mr. Bolton's damages?
A. No, sir.
Q. There is no reason why, so far as water is concerned that that land cannot be cultivated and cropped at the present time?
A. I believe not.
Q. Now you say there were some buildings on Mr. Mitzke's on Section 33?
A. Yes, sir.

Q. Is that the same town, and range in which you live?
A. Yes, sir.
Q. That is about two miles south of Fairmount?
A. One mile.
Q. How far from the river are these buildings?
A. Possibly half a mile, maybe a little over. I don't recall exactly.
Q. Does he own the Northeast quarter of 33?
A. I believe I have stated that Mr. Mitzle does not own it. I think the record shows it in the name of one Mr. Swivel.
Q. Where does he live?
A. Somewhere in the state of Minnesota.
Q. Those lands cultivated this year?
A. No, sir.
Q. Why not?
150 A. For the same reason all of them were not.
Q. There was no one living there?
A. No, sir, they couldn't.
Q. What was the condition or what is the condition of the land now?
A. Grown up with cattails and I suppose it is maybe dry by this time. The river is almost entirely dry now. The channel is very narrow.
Q. As far as water is concerned it is as susceptible of cultivation as it ever was?
A. I think not.
Q. What is the matter with it?
A. Same trouble with all of it that you can't cultivate that wild land after it has been under water for two or three years.
Q. I say so far as water is concerned it can be cultivated?
A. Yes, I think so.
Q. Alkali on it?
A. I think not.
Q. You think those buildings are a mile and a half from the river's edge? There on the Northeast of 33?
A. I should say very close to it, may be a little more or a little less.
Q. Might be considerably less?
A. I have given my answer to the best of my ability.
Q. What is the character of the banks of that river opposite these buildings on 33?
A. The banks are very low.
Q. Are there any banks there at all?
A. Yes, sir.
Q. Isn't it true that the river at the point opposite those buildings on the Northeast quarter of 33 is practically a slough and has no well defined banks whatever?
A. The banks are very low there.
Q. Well, does my question state the fact or not?
A. Yes I think there is no well defined banks. They are very low, as I stated.

151 Q. Do you know what the elevation of the river is at that point?

A. From the ocean level you mean?

Q. Yes.

A. No, I am not an engineer.

Q. Do you know anything about the elevation of the buildings?

A. No.

Q. So whether the buildings are above the level of the river, you don't know?

A. No, sir.

Q. Those are valuable buildings are they not?

A. They have been.

Q. How long have they been there?

A. A great many years, one of the oldest and most productive farms in the country I was told when I first came there and they bear evidence of being old buildings.

Q. Do you know whether there has ever been any United States patent issued on that land?

—. ——.

Q. Do you know whether it was homesteaded?

A. No, sir.

Q. Now this Caruthers land over here in Section 9—what part of the section are the buildings on?

A. Well, I should say nearly a point midway between the north and south line on the extreme western edge.

Q. That is in the township south?

A. That is in 129.

Q. Is there a highway passing north and south on the quarter line of Section 9?

A. There is a highway on the section line. On the north side of the quarter you say?

Q. No, I say through the middle of it, north and south?

A. No sir, there is no public highway, there is just a private road down to the buildings.

Q. You say that is a private highway?

A. Leading down to these Caruthers buildings.

Q. Which quarter of Section 9 are these Caruthers buildings on?

A. Perhaps I can enlighten you a little bit as to the location of these lands and how this section is divided up. The west side of the section comprises a strip 80 rods wide and a mile long

152 and belongs to a man by the name of Burgess. Then the Ridell land has two strips of 80 rods wide and half a mile long, one being on the northwest and one on the northeast, and his buildings on the west side of the strip of land and pretty well back, about eighty rods from the public highway.

Q. And how long have these buildings been built?

A. There have been there, I believe, for a great many years. They have been greatly improved and added to a few years ago though.

Q. When?

A. To the best of my knowledge about five years ago,

Q. The assessed valuation of the buildings for 1917 appears to be about $70?

A. I will not testify as to that, I haven't the records before me.

Q. But you think the buildings are fairly good buildings?

A. Yes sir, fairly good farm buildings. The house is in excellent shape. I was in it recently and I know.

Q. Anybody living there?

A. No there has not been for two years or more.

Q. Was anyone living on it in 1915?

A. I think it was in the hands of a renter at that time.

Q. And the renter vacated when?

A. I don't — the exact date. They certainly had to leave early in 1915.

Q. Now so far as water is concerned that land is just as susceptible of cultivation as it ever was?

A. At this date it is.

Q. Has there been any hay put up there this year?

A. I think none of Mr. Ridell's or the Caruthers land.

Q. You have been down there to see?

A. I have been down that way several times.

Q. How recently?

A. I guess about two or three weeks ago. I passed along the highway only a week ago.

Q. You didn't see any hay put on this land at all?

A. I think there was none.

Q. How about Section 9, any hay on that?

A. Yes sir.

153 Q. How much.

A. I wouldn't say just how much. The lands closer to the the river have better hay on them than those a little more removed, because a little farther back the cat-tails seem to thrive better on lands if they are partially submerged.

Q. Is there not a great amount of hay on Section 9 put up at the present time?

A. I think not.

Q. You don't want to make any correction in that statement about that?

A. I said I hadn't been down there for two or three weeks. I passed along the highway two or three weeks ago.

Q. You didn't see any hay on Section 9?

A. I said there wasn't any great amount. I think possibly it will be cut later this fall. While there is a great deal of hay there it is not much sought because it is difficult to put it up, so much dead trash on it.

Q. How about section 4, north, of that—any buildings on it?

A. I think not.

Q. Any hay put up there this year?

A. I haven't been on Section 4.

Q. You don't recall whether there was any hay put up there or not?

A. No.

Q. Any of Section 4 under cultivation this year?
A. Yes, some on the west edge, I think.
Q. Good crops there?
A. I would hardly say they were good crops.
Q. Some crops?
A. No good crops. It has been too dry.
Q. Some parts of Section 9 cultivated?
A. I think none of 9 is cultivated.
Q. How about Section 16 to the south of 9, which you say is the Broderick land, and of that cultivated, this year?
A. No, sir.
Q. Any hay put up on it?
154 A. Well, I will correct that. I think there is a part of 16 that has some fodder corn on it. It is on the Cleary land.
Q. Now is there a highway running through section 16?
A. One on the west side and one on the south side.
Q. There is not any through the quarter line north and south?
A. No sir.
Q. Is there any private highway there?
A. You would hardly call it a road-way. People drive across there of course.
Q. You say there are buildings on the Broderick land?
A. The house I think was badly damaged a year ago last summer—no, it was the barn that was damaged by that storm and being surrounded with water he has not rebuilt it. The house is standing there, deserted, as no one is living in the house I suppose he does not think it worth while to rebuild the barn.
Q. As far as water is concerned the farm can be cultivated as well as ever?
A. I suppose so.
Q. There is hay on that farm this year put up?
A. Yes, quite a good deal on the Broderick land and Mrs. Cleary's land.
Q. In fact the whole of Section 16?
A. No, I would hardly put it as strong as that. I put up some there myself.
Q. Well, about what portions do you think has been cut over this year for hay?
A. I should say two hundred acres on the whole section possibly.
Q. Now you say there was some buildings on 21—two sets.
A. I think there was yes.
Q. Mrs. Cleary's buildings both on 16?
A. No sir, they are in 17.
Q. They are within this area marked yellow on the map?
A. Yes sir.
Q. What is the condition of her buildings?
A. In good condition.
Q. Particularly good condition?
A. Yes, sir.
Q. Very prosperous looking place isn't it?

A. The buildings are new—the house at least, and the barn is in very good repair, I believe.

155 Q. She has a good crop this year?

A. No sir, she has but very little, if any, crop at all.

Q. Put up a great deal of hay?

A. Not a great deal. I should say possible forty or fifty acres.

Q. But so far as water is concerned her farm is just as susceptible of cultivation as ever?

A. I suppose so.

Q. Now on 21, is that where the town of Blackmere is located?

A. I guess it is, the town must be right in the Northwest quarter.

Q. How much of the town is that?

A. No town at all, nothing except an elevator.

Q. Did they ever have anything else?

A. Yes, two elevators there.

Q. When did the one elevator cease to exist?

A. I think some two or three years ago.

Q. Was that prior to 1915?

A. About that time. I couldn't state whether it was more than two, somewhere about 2 to 4 years.

Q. Well how many houses were there in 1915.

A. Never been but one house there for the grain buyer.

Q. Been a depot there?

A. Never.

Q. Just a platform?

A. I don't think they have even a platform.

Q. Well then this village of Blackmere has always consisted of one house and up to two or three years ago two elevators?

A. Yes sir.

Q. And now you say the railroad track there was flooded in the spring of 1915? And spring of 1916?

A. Yes sir.

Q. And they had to raise the track?

A. Yes sir.

156 Q. They did raise the track and it is now out of reach of the water?

A. Yes sir.

Q. Now east of Blackmere you say there were two sets of farm buildings belonging to whom?

A. I think they are on what is known as the James A. Westerman land.

Q. The first set is how far east of Blackmere?

A. I guess a mile.

Q. Is that a good set of buildings?

A. Why they are rather old buildings and are like a good many buildings that have been in the hands of rentors, they are not kept up in the best repair.

Q. Where is the other set of buildings with reference to the first set?

A. Farther south, I believe.

Q. And a little to the east?

A. I would judge so.
Q. What kind of buildings are those?
A. Old, same as the others.
Q. Unpainted?
A. Well, I guess it has been a good while since they were painted if they were ever.
Q. How long since anybody has lived in that set of buildings?
A. Why the rentor had to move out in the fall of 1915?
Q. Was there somebody living there in the fall of 1915?
A. Yes sir.
Q. Was there somebody living there in each of those in the fall of 1915?
A. I would not be positive as to that.
Q. So you wouldn't say, generally speaking, that those farms on the east side of Section 21 were in a high state of improvement and cultivation?
A. Well, certainly not in recent years.
Q. Well, up to 1915 they weren't either, were they?
A. Well, being owned by a non- resident and trusting to rentors, I think probably he found it difficult to keep them in a high state of cultivation.
Q. Is there any hay put up on Section 21 this year?
A. I wouldn't be able to state positively as to that, I think possible there is.
157 Q. Any of it under cultivation?
A. No.
Q. What is the character of the river bank east of this section 21?
A. Very low banks.
Q. Practically none at all, practically a slough, isn't it?
A. I presume you would call it so.
Q. Any buildings in Section 28?
A. Yes.
Q. Vacant buildings?
A. Yes sir.
Q. Who owns thos- buildings?
A. Mr. Waddington, I believe.
Q. What kind of buildings are those?
A. Very much the same as those I have just described, old buildings.
Q. Tenant buildings?
A. Yes sir, not kept in the best of repair.
Q. Was any of that land in 28 cultivated this year?
A. No sir.
Q. None of that section?
A. No sir.
Q. Any of it put up for hay?
A. Maybe a little hay put up there.
Q. Now it is on 28 that this school house is?
A. I think so.
Q. Isn't it dry around that school house now?
A. Yes.

Q. Haven't they had school there this year?
A. No sir.
Q. Any school there now?
A. No sir.
Q. You are sure about that?
A. I am quite sure about it, yes.
158 Q. Did they have school there in 1915?
A. I think the spring term was completed in 1915 but not in the fall.
Q. And they haven't had any school there since and haven't any now?
A. I believe that is correct.
Q, Have you observed anything about that to enable you to testify to it?
A. Why, I know people living down there came to me as township officer asking if we couldn't do something, haul dirt in on these highways so they could get to school, and they couldn't have any school there unless we did so.
Q. But whether there is any school there now?
A. I know there is no school there now because it is not school period yet. None of them have opened yet.
Q. Is there any reason why it can't open there when the time comes this fall?
A. I presume not.
Q. The school building is not hurt any?
A. I haven't been in it. I couldn't state. It was undoubtedly surrounded by water,
Q. It doesn't appear so anyway?
A. No, the roof is all right anyway.
Q. In Section 33 farther south are there some farms there?
A. Yes sir.
Q. How many sets of buildings on that section?
A. I don't recall without looking at the record.
Q. Are there any vacant buildings—Mr. Baker, you spoke of?
A. Yes sir, they are vacant now.
Q. How long have they been vacant?
A. For two years, I think.
Q. What kind of buildings?
A. Excellent, good buildings.
Q. What is the condition around them now, is it dry?
A. Yes sir.
Q. And so far as water is concerned the farm could be cultivated now as well as ever?
A. Yes sir.
159 Q. Now further west in 34, a set of buildings there?
A. Farther east you mean?
Q. Yes.
A. Yes sir.
Q. Are those occupied?
A. No, that is one set of buildings I believe.
Q. The other occupied?

A. Yes sir.
Q. Farmed this year?
A. I think I stated that Mr. Lundberg on 34 had a little patch of fodder corn that was put in late in the season.
Q. Just north of that in 27 are there any buildings on that?
A. Yes sir.
Q. Nobody living in them?
A. No sir.
Q. Any part of that cultivated this year?
A. No sir.
Q. Or cut for hay?
A. May be a little hay on it.
Q. Now take it over in Section 17, that would be just north and west of Blackmere—buildings on that?
A. Mrs. Cleary's buildings.
Q. Now just south of her place in 20, who lives there?
A. Mr. Martin.
Q. He cultivated his land this year?
A. Yes sir.
Q. Put up his hay?
A. I am not sure he has any hay ground.
Q. All cultiav-ed?
A. Except the pasture.
Q. Has a good set of buildings?
A. Yes sir.
160 Q. Very prosperous looking farm, isn't it?
A. Yes sir.
Q. Anybody else on Section 20?
A. Yes sir. Man by the name of Litzel lives on the Northwest of 20, I think.
Q. Where does Martin live?
A. On the Northeast of 20.
Q. And this land on the Northwest of 20 is Litzel's?
A. He has a tenant there.
Q. That a good farm?
A. Well it suffered badly from this flood.
Q. How is it now?
A. The water has receded of course.
Q. Dry?
A. I presume it is.
Q. Good buildings?
A. Yes sir.
Q. Good crops this year?
A. I presume about like the average.
Q. Well, what is that, good or poor?
A. Poor.
Q. He cut his hay?
A. I am not sure that there is any hay ground on that farm.
Q. Any more buildings on 20—how about the Southeast?
A. I believe Mr. Sauter's buildings must be on 20.
Q. He lives there?

A. Yes sir.
Q. Cultivated his land this year?
A. I presume so. He is quite an extensive farmer and I doubt whether he has much land in there as he only has forty acres there.
Q. What does he do, pasture stock and so on there?
A. I think so, yes.
Q. A very prosperous looking place right now?
A. Yes sir.
161 Q. He has an abundance of pasture, put up a good deal of hay, keeps a great deal of stock?
A. Yes sir.
Q. Anybody else on 20?
A. I think not.
Q. Now take south of there in 29?
A. Who lives on the Northeast quarter? *A*. I believe that is where Mr. Waddington's buildings are.
Q. Does he live in them?
A. Yes sir.
Q. Cultivate his land this year?
A. Yes sir.
Q. Got good buildings?
A. House is very good. His barn is old.
Q. House and barn are pretty good, in fact he has a fine prosperous looking farm?
A. Yes sir.
Q. And so far as water is concerned his farm is just as good as it ever was as far as being wet is concerned?
A. I presume so.
Q. Now the Northwest quarter, who lives on that?
A. I think there are no buildings on the Northwest unless it is Mr. Sauter. He has two sets of buildings and I think possibly his other set is on there.
Q. What is the condition of that land?
A. I presume the same condition as the rest I have described.
Q. Being cultivated this year?
A. I think not all of it. It was wet early in the spring and I think he was unable to get it put in.
Q. Lots of hay on it?
A. I don't recall seeing much hay cut on it.
Q. And the southern half of that section—somebody living on that?
A. To the best of my recollection there are no other buildings on 29 except Mr. Waddington and Mr. Sauter's.
162 Q. But the balance of that section as far as water is concerned is just as good for cultivation as it ever was?
A. I think so.
Q. Now in Section 32 how many farms in that section?
A. I think only one set of farm buildings on that.
Q. Where are those?
A. Down on the side line, I think, deserted and have been for a couple of years.

Q. What is the condition of that land?
A. Lying there a waste and loss to the owner.
Q. Not cultivated this year?
A. No.
Q. No part of it?
A. I think not.
Q. Is there a swamp or slough on it?
A. I don't think there is any slough on it.
Q. You don't know about that?
A. I don't know, no sir.
Q. Did you ever observe it to see whether it was cultivated land or swamp land?
A. The man that owns it was in my house a couple of months ago and he told me he had no crops on his land this year and no one in his buildings.
Q. Now speaking generally of this entire area, you have testified to, from the mouth of the Rabbit River south to the state line, which is called yellow on this map, Exhibit 1, so far as water is concerned, Mr. Pinkney, those lands are just as good for cultivation as they ever were, aren't they?
A. I presume so, yes.
Q. Have you any interest in the result of this suit?
A. Yes sir.
Q. How much interest or damage have you got in the result of this suit?
A. How much interest?
Q. Do you claim to have?
A. In dollars and cents?
163 Q. Yes sir.
A. It will be immeasurable. I have lost my whole life's savings unless we can get this condition removed.
Q. Do you expect, if damages are recovered by the state of North Dakota, that you will receive compensation for the damages that you have suffered?
A. Yes sir.
Q. And have you not contributed to the fund to defray the expense of conducting this case on the part of the complainant?
A. Yes sir.
Q. Is it not true, Mr. Pinkney that the lands from your place south to the state line indicated by the yellow area on this map, Exhibit 1, are very stony and rocky?
A. No sir.
Q. Not any of them?
A. There are small patches of stones, but I don't think they are greater or more troublesome to those that farm the land than there are in the whole section; not so on my own lands.
Q. You wouldn't say Mr. Pinkney that the statement is true that this flooding of these lands that we have spoken of in the years 1915 and 1916 has wholly destroyed the use of the land for any agricultural purpose whatsoever?
A. It has for those two years.
Q. But for those two years only?

A. No, I couldn't say definitely. That will be a question depending on weather conditions. They will only be safe for agricultural purposes in years like the present when they are excessively dry.

Redirect examination.

By Mr. Bronson:

Q. And might it be possible to further qualify the statement you have just made, that they will only be safe for agricultural purposes when the menace of the waters coming up from the south from Lake Travers may be removed?

A. That is correct.

Q. No counsel has asked you several questions covering these different pieces of land, going into some detail and asking you
164 from time to time whether or not as far as water is concerned these lands are available for purposes of cultivation this year as well as any other year, and in that connection I will ask you to state whether or not these lands in this yellow territory which were submerged during the year 1915 and upon which no crop returns were secured, generally speaking, in the year 1915, and which were likewise submerged in the year 1916 and no crop raised on them, whether or not under those conditions of submergence for those two years the lands so submerged, in the year 1917, were fit for any agricultural purpose?

A. They are not.

Q. Why not?

A. Because they have been too wet.

Q. And what is the result of the farmers' view point through experience secured of submergence of lands for two years which therefore had been tilled and cultivated for raising a cerial grain or tame hay crop or otherwise?

A. What is the result?

Q. What is the result or effect upon the lands?

A. The lands are rendered unfit for cultivation except by great labor and reclaiming them. They go into a wild state.

Q. Well, at the end of the year 1915, as far as these lands was concerned, if I understand your testimony correct on direct as likewise covered partly by cross-examination, there was no plowing or cultivating or tilling of the same during that year after the flood came?

A. No sir.

Q. And that same condition continued until the year 1916?

A. Yes sir.

Q. In other words these lands so submerged remained idle and inactive during those two years?

A. Yes sir.

Q. What would be the effect of overspreading of water over these lands, as far as bringing these cat-tails or other foul seeds or thing- of that kind?

A. The lands are filled up with all manner of foul weeds.

165 Q. Well counsel speaks of the present condition, that as far as water is concerned these lands are just as available for cultivation as they ever were, and I will ask you whether or not the Red River valley is a one crop season territory, or two or three crop season territory?

A. The only way you can be sure of a crop in the Red River Valley is to have the plowing done in the fall and do your seeding early in the spring.

Q. Now this territory for general description purposes, you have already stated to be termed a portion of the Red River valley, and I will ask you to state whether or not, generally speaking, this Red River valley, so termed, extends not only from Lake Travers north to Wahpeton, but also along the Red River of the North upwards as fas as the state of North Dakota extends and then beyond?

A. Yes sir, that is the way I understand it.

Q. And this territory so termed the Red River Valley is agriculturally used in raising what kind of grains?

A. Wheat, oats, flax, barley, speliz, tame grasses, alfalfa, corn, buckwheat, millet, timothy.

Q. And generally speaking, as far as this territory is concerned the cropping season for planting and sowing is what time of year?

A. During the spring months for wheat, oats, barley, and flax a little later, possibly about a month, up to the middle of May or 1st of June.

Q. Generally speaking, the crop planting season then in this Red River Valley and particularly in the portion where you live commences about when in the spring and when about does it end?

A. From the first week in April to the middle of May is about the end of the safe period.

Q. What crops generally are raised as fas as wheat is concerned in this lower portion of the valley, spring or winter wheat?

A. Spring wheat. One or two attempts at winter wheat, I believe.

Q. And this is sown at what time in the season?

A. As early in the spring as you can, the earlier the better.

Q. And generally speaking, from the farmers' view point, is it planted on spring or fall plowing?

166 A. Fall plowing for wheat is considered the only safe method.

Q. And how about barley?

A. Barley can be put in later and on spring plowing with some degree of safety.

Q. And Flax?

A. Flax can be put in still later and either on spring or fall plowing.

Q. And corn?

A. It should be put in before the flax.

Q. On spring or fall plowing?

A. Either one. I prefer fall.

Q. Now relative to these tracts of land you have mentioned in the spring of 1917, this summer, how much of this territory, generally speaking, has been put into crop—cereal crops?

A. I should think not over ten per cent of it.

Q. And in what way, for purposes of understanding, would a crop of wild hay grow on lands that in 1916 and 1915 had been submerged, and prior to that had been cropped either to barley, or flax or speltz, or corn or wheat?

A. It would have to be voluntary entirely, flooowing the submergence of the water.

Q. What I am trying to understand is as to how as a matter of fact a crop of wild hay would grow voluntarily the year following submergence of lands in 1915 and 1916 that had theretofore been planted to small grains?

A. There would be no crop of wild hay.

Q. Then as far as cutting of any hay is concerned in 1917 that would be upon lands which theretofore had been in the wild state?

A. Yes sir.

Q. And what do you state about the general condition as to lands which had theretofore been in crops of wild hay, after two years of submergence in 1915 and 1916, as far as the year 1917 is concerned?

A. The hay, where it is found upon these lands is—well, I wouldn't say it is of an inferior quality, but it is hard to dispose of and hard to handle because it has grown up with this dead stuff of the two years past.

Q. I would further like to understand whether or not on these lands that were submerged in 1915 and 1916 and upon which there was any certain portions thereof growing a wild hay crop, whether or not this wild hay would subsist and survive the two years of submergence?

167 A. It doesn't all of it survive. There has been a good deal of it killed out entirely.

Q. That is by the water?

A. Yes sir.

Q. Now further as to the general conditions prior to 1915 in this territory designated on Exhibit 1 by a hellow shaded portion, you may state whether or not there was laid out some roads down through this territory from Fairmount, known as the meridian road?

A. Yes sir.

Q. What is this meridian road?

A. Well, I don't know as I can answer that correctly. It is known as the meridian road and a meridian is a line running due north and south, and my understanding of it was that it ran clear from the northern boundary, clear across the continent as near as possible.

Q. You recollect the time when parties came through there and made the estimate of what is termed as the meridian automobile road?

A. Yes sir.

Q. Which road passed through this yellow shaded portion on Exhibit 1 from Fairmount south along what line, between what sections, generally speaking?

A. South along this line here.

Q. Between Sections 28 and 29, south of Fairmount?

A. Yes sir, half a mile east of the Milwaukee track.

Q. Due south?
A. Yes sir.
Q. To where?
A. White Rock, to the state line, and then from there to White Rock.
Q. And due south to the state line between Sections 32 and 33 and then a mile south to the section line going into White Rock east?
A. Yes sir.
Q. This road extends beyond Fairmount north——
A. Well there is a slight jog east there before you get to the state line, here at Blackmere.
168 Q. Now let us see, Mr. Pinkney, getting this road located. It started on the east line of Fairmount?
A. Yes sir.
Q. Down between 28 and 29?
A. Yes sir.
Q. And then down south to the Blackmere section line?
A. Yes sir and then jogged a mile east.
Mr. Palmer: Which section does it jog east on?
A. Between 16 and 20.

Mr. Bronson:

Q. And then due south into White Rock?
A. Yes sir.
Q. Now before 1915 how long was this road so termed, automobile road, in existence?
A. A year or two. Longer than that. I don't recall the exact date when it was located. Must have been two or three years. I might be mistaken about that.
Q. Do you know anything about the travel across it?
A. It used to be a much traveled highway.
Q. And after these conditions existed in 1915 or 1916 what became of that road as to its state and as to i-s present condition?
A. It has been utterly impassable during most of the time in 1915 and 1916, and most of 1917, until the last few months you can bump over it. About like riding over a corduroy road on the south end.
Q. During 1915 and 1916 you may state whether it was likewise submerged with the other territory?
A. It was.
Q. And at the present time you may state whether this road is *is* in any way grown up to grass or anything of that sort?
A. Looks very much like a prairie trail after you get a couple of miles south of Fairmount.
Q. Now you may state whether or not this meridian road was changed at different places after this flooded condition?
A. Yes sir, they moved it to a mile farther west.
Q. That is instead of going down as you have described it went thereafter a mile farther west?
169 A. Yes sir, turning at the south-side of Fairmount and going west a mile.

Q. And then south?
A. Yes sir.
Q. To the White Rock section line?
A. Yes sir.
Q. And then into White Rock?
A. Yes sir.
Q. Now you spoke also just a little bit, Mr. Pinkney, about conditions down in the southern portion of this territory in North Dakota, described on Exhibit 1, and having visited White Rock during 1915 and 1916?
A. Yes sir.
Q. I will ask you to state whether or not you observed any flood conditions existing at White Rock in 1915 and 1916?
A. I did.
Q. White Rock is a town a mile south of the state line situated in South Dakota?
A. Yes sir.
Q. How big a town is it?
A. I think about five or six hundred.
Q. And about how far is it from Lake Travers.
A. I suppose three or four miles north of Lake Travers proper.
Q. Situated on a railroad?
A. Yes sir, the Milwaukee railroad.
Q. And in 1915 what time were you down there if you recollect, or were you there at different times?
A. Several times.
Q. During flood conditions?
A. Yes sir.
Q. And what did you observe as to the flood conditions existing at White Rock in 1915 and 1916?
A. They were in a sorry conditions.
Q. Well state what you say there in 1915 and 1916 during the flood conditions?
170 A. Water everywhere in all the ditches and lots and creeping right up on to the main street. You could jump off from the sidewalks into water over your shoe tops.
Q. What was conditions as to the access to White Rock from the highway running a mile west?
A. A good portion of the time it was wholly impassable.
Q. What was done if you saw anything done with reference to keeping it up by rip-rapping or such things?
A. I know they were busy hauling in timbers there to maintain the grade there from the waters washing acrossed it.
Q. And how about the road leading to the east of town, or leading into town from the east rather?
A. That was also very wet and submerged for a good share of the distance, not so long a distance because the rise in the land is more rapid there.
Q. There seems to be shown on the map just northeast of Fairmount a place named Childs—what is that?
A. It is a shipping station over on the Great Northern road in the state of Minnesota.

Q. With an elevator?

A. Two elevators, I believe.

Q. Counsel has asked you some questions about the crop conditions in the year 1916 in North Dakota and particularly with reference to the crop conditions in your locality as well as in the Red River valley, and I believe you said something about the normal crop being about 30 per cent. I understood that you mean the crop results of 1916 were 30 per cent of the normal total crop or 30 per cent of the crop?

A. Thirty per cent of an average crop. I think that is the impression I conveyed. That is what I mean to convey anyway.

Q. Now the year 1916, as far as the state of North Dakota is concerned on wheat or cereal crops was one of diminishing returns, was it not?

A. Yes sir.

Q. And from the view point of the conditions that produced it in North Dakota, in the year 1916, as far as you observed it, you would state it to be what—what was the trouble with the crop of 1916 in North Dakota?

171 A. The great trouble with the crop was very little fall plowing was done the fall of 1915 and then excessive heat and the rust destroyed what little crop we had in.

Q. Have you heard the general statement made as to North Dakota conditions in the year 1916, that there was about 39,000,000 bushels of wheat produced that year?

A. I think I have.

Q. And are you cognizant of the fact that during the month of July excessive heat developed a rust condition?

A. Yes sir.

Q. And what is the effect of a rust condition on maturing wheat?

A. The crop is generally nearly destroyed.

Q. What is rust?

A. I am not a scientist. I believe they call it a fungus that destroys the grain.

Q. You know it when you see it?

A. I know it when wheat is rusted.

Q. What effect does it have?

A. The grain shrivels up and doesn't fill.

Q. And during 1916 a bushel of wheat in your territory would weigh what as a result of this rust condition?

A. I think from 39 to 45 pounds.

Q. The standard weight of a bushel in North Dakota is how much?

A. Sixty pounds.

Q. Now I didn't understand you to testify that through this territory that was submerged in the year 1916 a thirty per cent crop was realized?

A. There was no crop realized in the submerged territory.

Q. Now as to the territory that was west of the Bois de Sioux river and was not within this submerged area, would you say that the crop returns for the year 1916 were about thirty per cent or averaged about the same as for the whole state of North Dakota?

A. I should say possibly about the same.

Q. And when you speak of crop returns as far as wheat is concerned that means in weight does it not and not in quantity?

A. Yes sir.

172 Q. And as far as weather conditions were concerned in the year 1916 upon lands that were west of this submerged area was the wheat crop and cereal crop able to be harvested?

A. Yes sir.

Q. And threshed?

A. Yes sir.

Q. And the ground plowed?

A. Yes sir.

Q. Counsel asked you one question as to what you paid for some of this land you bought in 1902 and you said $36.50 per acre?

A. Yes sir.

Q. Did you also buy this 80 acres you spoke of close to there?

A. Not at that date.

Q. Some later date?

A. I think in 1912.

Q. What did you pay for that?

A. $97.50.

Q. Per acre?

A. Yes sir—no, I take that back, I guess it wasn't quite $97.50. I paid $7,500 for the eighty acres. It will be $93.75 I guess.

Q. Counsel asked for some questions about the unusual weather conditions that prevailed in the year 1916 in your territory as well as asking you some questions concerning what you knew about the highest known floods at Fargo or Grand Forks during that year, and I will ask you to state whether or not you have any knowledge of conditions at Grand Forks as compared with the floods of 1897 or 1891?

A. I have not.

Q. Or the conditions at Fargo as compared with the flood of 1897 or 1891?

A. I have not.

Q. Or the conditions at even the town of Fairmount as compared with the 1897 or 1891 floods?

A. I heard reports.

Q. But your own knowledge?

A. No sir, I wasn't there.

173 Q. I will ask you to state whether the weather conditions as far as you actually observed them in the question of rainfall and its effect on land in the year 1916 was greater in amount or in effect than some other years when you had lived there?

A. No, I have not. The effect was more terrible to us.

Q. That is the effect of the flood conditions?

A. The rainfall, yes.

Q. But the point of inquiry is, Mr. Pinkney, whether or not these flood conditions you have been talking about in the year 1916 were wholly occasioned by the flooded conditions existing resulting from rainfall in your locality or whether or not it resulted from the rainfall in your locality and something else?

Mr. Palmer: Surely you don't expect this witness to qualify to answer that question.

Q. No, I am trying to bring out from the witness the comparative rainfalls while he has been living there?

Mr. Palmer. Objected to, as the witness has not shown himself qualified or competent to testify.

Q. I will restate again to you by stating generally, the rainfall condition for the year 1916 as compared with other years you have been telling about as far as working the lands were concerned. In other words did you have an opportunity to draw any comparisons as to weather conditions in 1916 and 1915 and as compared with the other 13 years you have lived there, upon the territory that was not submerged and which you owned?

A. We had out lands handled there in 1915, situated as I have stated and the land that we had plowed we had seeded in 1916.

Q. Got a crop in 1916?

A. Yes, a little crop.

Q. On account of this rust condition the crop was poor?

A. Yes, heat and rust.

Q. And you don't understand then the failure of the crop that you had on this land in 1916 that was not submerged was due to water being on it?

A. No sir.

174 Q. But this failure of crop in 1916 was due to rust conditions?

A. And heat.

Q. And not to water?

A. No sir.

Q. Now counsel has asked you several questions about these vacant buildings. Can you restate generally about how many buildings have become vacant as a result, as you have observed it, of these water conditions in 1915 and 1916, that were formerly occupied?

A. I think I enumerated eleven.

Q. Farms that were formerly occupied and tenanted that are now idle and not occupied?

A. Yes sir.

Q. Is it also fair to state that these same farms have not been productive since 1914?

A. Yes sir.

Q. Do you know, generally speaking, how many farms there are within this district that we have been talking about as being flooded in 1915 and 1916 in North Dakota?

A. How many owners or how many quarter sections?

Q. How many different farms containing sets of farm buildings?

A. I think from thirty to forty would be a fair estimate.

Q. Has there also been some land in Minnesota submerged in these years?

A. Yes sir.

Q. On the east side of the Bois de Sioux?
A. Yes sir.

Recross-examination.

By Mr. Palmer:

Q. What causes rust?
A. I am not a scientist. I would not attempt to answer that.
Q. Isn't it heat and wet?
A. Some scientists I have known have claimed it is barberry hedges that cause rust.
Q. Then it — not the Mistinka ditch, is it?
A. I think not. We are not charging that up against you.
175 Q. Now you spoke about the excessive wet condition of the land in the fall of 1915 and inability to plow it as having something to do with the rust?
A. No.
Q. Well then the wet fall of 1915 had nothing to do with the loss of crops in 1916?
A. Yes.
Q. What?
A. The inability to plow the land of course would mean that we couldn't get the crop put in and therefore the acreage would be cut down.
Q. But so far as the wheat is concerned it can be put in just as well in the spring plowing as fall plowing?
A. Oh, no, I don't agree with you at all.
Q. Why can't you?
A. Because as a matter of common experience and knowledge we know we fall down when we put in wheat on spring plowing.
Q. What do you fall down on?
A. On getting a crop.
Q. But what do you fall on—rust?
A. No, not necessarily rust.
Q. Well, you fell on rust that year, didn't you?
A. Well, on rust together with rust and the little we had cropped. We fell down because we didn't have the ground plowed.
Q. Well, heat itself will not kill wheat?
A. It is not favorable for wheat.
Q. Heat and wet together will cause rust?
A. I am not prepared to affirm that answer you have made.
Q. You are not prepared to deny it, are you?
A. I should be strongly inclined to deny it.
Q. Now, I take it also that if the ground was excessively wet in the fall of 1915 and froze up in that condition there would be greater floods in comparison to the amount of rainfall in the spring of 1916 than usual?
A. Yes sir, I think that would be true.
Q. Now did I understand you to say that there are thirty or forty farms having distinct sets of farm buildings in this area marked yellow on this map, Exhibit 1?

176 A. I don't know as I stated that they all had farm buildings. I think I stated there were from thirty to forty farms.

Q. Well, with farm buildings there are just eighteen, aren't there?

A. Not all of them have farm buildings.

Q. But with farm buildings there is just eighteen?

A. I haven't counted them up, but I think there would be more than that.

Q. You would not be prepared to deny that statement though?

A. If I were able to run over it in my mind I think I could give you a fairly accurate statement?

Q. Do so, please?

A. Twenty-five is all we are able to recall just now.

Q. Then there are twenty-five farms with distinct sets of farm buildings?

A. Yes.

Q. You are not responsible for the statement made in the complaint that there are eighty farms?

A. I am not responsible for anything in that. I presume that means both side- of the river.

Q. No, it means just in North Dakota?

A. Eighty farms or sets of buildings?

Q. Eighty farms?

A. Well, that is probably nearer right because they probably call each quarter section a farm.

Q. Or each forty a farm?

A. No, not each forty; each quarter section.

Q. Now you say there are eleven sets of buildings that have been vacant since the fall of 1915?

A. Yes sir.

Q. Where are they?

A. I have enumerated them to you.

Q. They are vacant now?

A. Yes sir.

Q. Now do you say that the whole eleven sets of buildings were occupied prior to the fall of 1915?

A. Yes sir.

177 Q. All of them?

A. Yes.

Q. Well, those buildings haven't been destroyed by this water have they?

A. Not totally destroyed, no sir.

Q. Well, they haven't been injured very much?

A. Oh, yes, it injures buildings.

Q. Well they have not been seriously impaired or injured?

A. I should think it would seriously impair*ed* them to have water standing over the sills and floors.

Q. But they could be put back in repair without much expense?

A. Oh, yes.

Q. If they were substantial buildings in the first place they were not much injured?

A. No matter how substantial buildings are, the water will

damage them. My fences were substantial but when the water stood on there two years they are entirely worthless.

Q. Now this school house—that was not destroyed?

A. No sir, not outside. It is all right from outside appearances.

Q. Now there were some bridges on this area?

A. Yes sir, many of them.

Q. Were those destroyed?

A. The approaches to them were destroyed in many instances.

Q. And the approaches had to be rebuilt?

A. Yes sir.

Q. Now you observed a flooded condition at White Rock?

A. Yes sir.

Q. In the fall of 1915 and Spring of 1916?

A. Yes sir.

Q. Now there is a road that goes from this meridian road you have described from the west line of Section 5 in 128-47 along the south line of 5 and the south line of 4 over to White Rock?

A. Yes sir.

Q. And that road extends clear on across the river?

A. Yes sir.

178 Q. It is a road something like two and a half or three feet in heighth?

A. I should say higher than that.

Q. Well, it will average about around three or four feet?

A. Three and a half to four feet.

Q. And that has a few small openings in it?

A. Yes sir.

Q. Culverts?

A. Bridges and culverts.

Q. There is a road on the next section line is there?

A. A road through there?

Q. Yes, on the side line, east and west?

A. Yes sir.

Q. And that is a grade?

A. Well, if it has not been totally destroyed by the water flowing acrossed it.

Q. It had a good grade in 1915?

A. Yes sir.

Q. How high was that grade?

A. I think of usual country road grades.

Q. Two or three feet?

A. From a foot and a half to two feet.

Q. Now the next section line, the north line of 32 and 33, did that have a grade to- at that time in the fall of 1915 running east and west across the Bois de Sioux valley?

A. Yes, some grade there. I think it was a poorer grade than this one here on the side road.

Q. How high was that grade?

A. A little lower than this other I should say.

Q. Any openings?

A. Yes, culverts where they were needed, I suppose.

Q. You don't know as to whether they were adequate culverts?
A. Adequate for ordinary weather conditions.
Q. Now take the north line of Section- 29 and 28 and running on across the Bois de Sioux valley—road there, too?
179 A. Yes sir.
Q. Quite a grade?
A. Yes sir.
Q. How high?
A. Well, that is a higher grade. I should judge two to two and a half feet.
Q. Any openings in that grade?
A. Yes sir.
Q. How many?
A. Several of them; one country bridge in here.
Q. On the north line of 29?
A. Yes, and then there is another township wooden bridge I think about a third of the way over from the east corner of 29.
Q. Adequate under ordinary conditions to carry the water?
A. Yes.
Q. Now on the north line of Sections 20 and 21 and extending on clear acrossed the valley—was there a grade there?
A. Yes sir.
Q. How high was that grade?
A. About the same as this one—two to two and a half feet.
Q. Openings in that?
A. Yes sir.
Q. How many?
A. One large opening here.
Q. Where is that?
A. Thirty-two feet wide, a bridge there, and another smaller one a little farther east.
Q. Where was that first one?
A. The first one was probably about 140 rods from the west corner, I should say.
Q. West corner of what?
A. Section- 20 and 17.
Q. Adequate to let the water through under ordinary conditions?
A. Yes sir.
180 Q. Now take the north line of Sections 17 and 16, was there a grade there too?
A. No- very much. That road has never been traveled very much, and I think there has never been much of a grade there.
Q. Why hasn't it been traveled very much?
A. No farm buildings along there, and people follow the main line highway.
Q. Pretty wet along there?
A. No, not ordinarily, I don't think.
Q. No buildings then on those sections?
A. No, I don't recall that there are any buildings on them to speak of clear across the township.

Q. Now take the north line of Section- 8 and 9 and going on across the valley, was there a grade there?
A. Yes sir.
Q. That a pretty good grade?
A. Very very good grade, yes.
Q. How high was that?
A. Two feet and a half.
Q. And openings in it?
A. Ordinary culverts.
Q. Where?
A. Well, I don't recall just now. None of any great importance. Others that live down there of course would be more familiar with it.
Q. Now the north line of Section- 4 and 3?
A. That is the township line.
Q. Any grade there?
A. Yes sir, a good grade.
Q. How high?
A. Three and a half or four feet.
Q. Any openings in it?
A. Yes, I think there are several good culverts there. I know there are.
Q. Sufficient to carry the water in ordinary times?
A. Yes sir.
181 Q. Now take the next section line, the north line of 33 and 34—grade there?
A. Yes sir.
Q. Clear across the valley?
A. Yes sir, clear across the township.
Q. Any openings in that?
A. Several culverts through it.
Q. How high was that grade?
A. About like this last one I have mentioned.
Q. Two or three feet?
A. Two and a half or three feet.
Q. Take the north line of 28 and 27 across there—a grade there?
A. Yes sir, a good grade. It is the main traveled road.
Q. About how high?
A. Two and a half or three feet.
Q. There is no road along on the Section line of 22 and 21 along the railroad?
A. Very little graded road. There is a highway, but it has never been used very much.
Q. Are there adequate openings?
A. Yes sir.
Q. There is a railroad grade right across the valley?
A. Yes sir.
Q. And another railroad grade across the valley a half mile south?
A. Yes sir, the Soo.
Q. This is the Great Northern on the section line?
A. Yes sir.
Q. Sections 14 and 15—road along the north line of those?

A. Yes sir.
Q. How high a grade is that?
A. Ordinary farm grade, one and a half to two feet.

Redirect examination.

By Mr. Bronson:

Q. These grades that you speak of as crossing east and west have been constructed from time to time and improved from time to time?

A. Yes sir.

182 Q. Some been raised since the floods?

A. Yes sir.

Q. And some not?
A. Yes sir.
Q. I believe on this line between Sections 10 and 15 north of the Great Northern tracks there is a bridge there is there not?
A. Yes sir.
Q. You call it the High Bridge or something of that sort?
A. Yes.
Q. And it was this high bridge that you now call the High Bridge that replaced the bridge that you tore up to let the water through?
A. Yes sir.
Q. In 1908?
A. Yes sir.
Q. Now all these lands we have been talking about in the yellow portions along the Bois de Sioux are in Richland county, North Dakota?
A. Yes sir.
Q. And prior to 1915 how were all these lands settled, cultivated and farmed as compared with the lands in the rest of the county of Richland?
A. They compared very favorably with any lands to be found anywhere in the county.
Q. As to being settled?
A. Settlement and state of fertility, and general appearance of prosperity.
Q. And about how big is Richland county?
A. I think there are forty-eight townships, if I remember right.
Q. Counsel asked you about the Bois de Sioux river where it passes the farm of Mitzke, the northeast quarter of 33, known as the Mitzke land, being a slough or being without any banks at that point. Do I understand that the river at that point has not any banks at all.
A. Very slight banks.
Q. But this Bois de Sioux river from the state line up to where it flows into the Rabbit river does not spread out anywheres in its course, does it, and lose its channel over the surrounding county?

A. Not in ordinary conditions, no sir.

183 Q. In other words at the present time there is a distinct channel that is observable in the Bois de Sioux river from the Rabbit River to the state line on the south?

A. I think so, yes sir.

Q. What I wanted to find out was whether or not the Bois de Sioux river in its course from the state line of North Dakota up to the Rabbit river has a more or less rather distinctly observable channel or whether or not some places it is spread out over the ground and you cannot find any channel?

A. Well, as I have stated, the banks are very low.

Q. Some places where the banks are low but still there is a channel?

A. Yes sir.

Recross-examination.

By Mr. Palmer:

Q. Now do you want to say that?

A. I have said it.

Q. Do you want to say that there is a well defined channel to that river from the state line north to Fairmount?

A. I said it was a very slight channel until it got up north of the Mitzke farm.

Q. Now east of the Mitzke buildings on 33 doesn't it seem to simply have the appearance of a prairie slough?

A. It might have that appearance at present, but I think when the water is low it has a distinct channel.

Q. And isn't it as a matter of fact simply an elongated swamp or slough without any well defined banks?

A. Without any very well defined banks, but still there is a slight channel.

Q. And aren't the banks even less defined on the east than on the west all along there?

A. Possibly so.

Redirect examination.

By Mr. Bronson:

Q. And at this place that he has been talking about, isn't this what is termed mud lake?

A. Yes sir.

184 Q. Where the Bois de Sioux flows into a low prairie basin and it is called mud lake?

A. Yes sir.

Q. And the Bois de Sioux flows through that and goes on north?

A. Yes sir.

Recross-examination.

By Mr. Palmer:

Q. This is opposite these Mitzke buildings?

A. Yes sir.

Q. There is a lake in there?
A. They call it mud lake.
Q. What do they do that for—it must have water in it?
A. Well lakes might have water in might they not.
Q. And that is why it is called mud lake, because it has water in it, a little expanse of water there?
A. Yes sir.
Q. A slough?
A. Yes sir.
Q. A muskrat slough?
A. Yes, sir.

185 BURT KURTZ, having been called as a witness on behalf of the complainants was duly sworn and testified as follows:

Examination by Mr. Bronson:

Q. Your name is Burt Kurtz?
A. Yes sir.
Q. How old are you?
A. Forty-one.
Q. And where do you live?
A. Live on the Northwest quarter of Section thirty-two, Town. 130.
Q. In Richland County, North Dakota?
A. Yes sir.
Q. How long have you lived there, Mr. Kurtz?
A. Twenty-five years. Well not right on that one place. I have lived there about twenty-one years.
Q. Who owns that land?
A. I do.
Q. How long have you owned it?
A. I bought it in the fall of 1896.
Q. And owned it ever since?
A. Yes sir.
Q. What has been your business ever since you have resided there?
A. Farmer.
Q. Anything else?
A. I have been assessor eight or ten years.
Q. In what Township?
A. Fairmount township; also have been on the Board.
Q. What Board?
A. Board of Supervisors.
Q. Within the last eight or ten yeras?
A. No slightly before that. Been assessor for eight years, possible about five or six years before that.
186 Q. For what time have you been assessor, the last eight or ten years?
A. Yes sir, with the exception of one or two years.
Q. From 1900?

A. The last six years I have been assessor before that there was one year I missed and two years before that.

Q. Anything else you have done besides this the last year or now—what are you doing now?

A. Farming.

Q. Have you had occasion to pass over this territory described in this yellow portion of Exhibit 1 from time to time during the years you have lived there?

A. Yes sir.

Q. In the work of assessor?

A. Yes sir.

Q. Went from farm to farm?

A. Yes sir.

Q. During 1916?

A. Well, in 1916 I didn't go to all the places. I notified them to come in, that I couldn't get to them on the south end.

Q. Have you likewise observed the territory north of Fairmount up towards Rabbit river and where the Rabbit river flows into the Bois de Sioux?

A. Yes sir.

Q. And are you familiar with the territory that is north of where the Rabbit river flows into the Bois de Sioux?

A. No- very familiar with it. I have been over it a good many times. Been over it with a boat and on the highway.

Q. So, generally speaking, you are familiar by actual observation with this territory between the state line of North Dakota to the south and this Red River valley up north along the Bois de Sioux river to Wahpeton, North Dakota?

A. Yes.

Q. Now I understand that you have farmed this Northwest quarter of 33 from what year?

A. 1896.

Q. Every year up until 1915?

A. Yes sir.

187 Q. Any portion of this section 33 been subject to overflow in 1915 and 1916?

A. Probably eight or ten acres. That is a little ravine that goes acrossed the southeast corner, that is all.

Q. How far are your buildings from the town of Fairmount?

A. A trifle over a mile.

Q. How large is the town of Fairmount?

A. About eight hundred.

Q. How far are you from the Milwaukee railroad?

A. About half a mile.

Q. The Milwaukee railroad to the west?

A. Yes sir.

Q. Who owns the land to the east of you?

A. M. O. Swiven.

Q. Where does he live?

A. Sacred Heart, Minnesota. It is in an estate and he is guardian or administrator of it.

Q. What is the general character of your farm as well as the farm to the east of you and lands along the Bois de Sioux river in the yellow portion as shown on this map, Exhibit 1?

A. Black sandy loam.

Q. And during the years you have resided there up to 1915 in what state of cultivation have they been?

A. Farmed every year.

Q. For raising what sort of crops?

A. Wheat, oats, barley, flax, corn.

Q. And as far as the state of cultivation goes, it is the same compared with the other lands in the county of Richland, North Dakota?

A. In regard to yields?

Q. In regard to the state of cultivation and yields, yes.

A. Yields just as good as any other land. In a dry year it is better. It outyields the one west of us.

Q. To what extent were those lands in this yellow portion shown on Exhibit 1, subject to overflow in the years that you were there up to the year 1915?

188 A. The first flood when I was there was in the spring of 1897.

Q. Was this spring of 1897 particularly noteworthy in the history of North Dakota as far as snow fall is concerned?

A. Yes sir.

Q. And also as far as snow melting and causing flood conditions were concerned?

A. Yes sir.

Q. During the winter in 1896 was there an unusual and unprecedented fall of snow?

A. Yes sir. Covered the tree claims in places.

Q. In some places you say it covered tree claims?

A. Yes sir.

Q. And to what extent did the snow stand on the flats in some places?

A. Oh, I suppose four or five feet on a level.

Q. Did I understand you to say in some places it would average four or five feet on the levels?

A. Yes sir.

Q. In 1897?

A. Winter of 1896 and '7.

Q. And in the town of Fairmount how were the conditions as you observed them?

A. You could hardly drive through the streets. When it was packed down you could look right in the upstairs windows from the road.

Q. Were you on this farm in the spring of 1897?

A. Yes sir.

Q. Were there some flood conditions there in the spring of 1897?

A. Yes sir.

Q. In your experience does the spring time of 1897 as far as

the extent of the flood is concerned exceed that of any other year up to 1915?

A. Yes sir.

Q. And do you recollect about when the spring time came in 1897?

A. I think it started breaking up the last of March or the 1st of April.

Q. And to what extent were these lands that you are talking about in this yellow portion here overflooded?

A. The greater portion of it was.

Q. And there was also water over other lands in the county of Richland?

A. Yes sir.

189 Q. Due to the melting *to* snow?

A. Yes sir.

Q. I suppose on account of the melting snows the ravines and depressions through there were more or less flooded?

A. Yes sir, as soon as the frost went out of the ground. It was no time until we got to seeding after the water went off the land.

Q. About how long would you say the flooded condition continued from the time it started until the lands were free?

A. I would say about 15 days.

Q. Were these other lands in Richland county as well as these lands in this yellow designated territory cropped that year?

A. Well, I couldn't say only between our place and Wahpeton. Between there and Wahpeton they was cropped.

Q. These lands east of you to the Bois de Sioux, were they cropped?

A. Yes sir.

Q. And north of that were they cropped along the Bois de Sioux river?

A. Yes sir.

Q. Were your lands, the Northwest of 33, flooded that year?

A. About a hundred acres.

Q. How long did that condition continue?

A. Not very long on my place.

Q. About how long?

A. I don't suppose it stayed there over fifteen days before it got clear off, but it started down in five or six days.

Q. Did these water conditions existing in 1897 impair your putting in a crop?

A. It made us a little late. It was the last of April or the 1st of May.

Q. Did you have a crop on the Northwest of 33 that year?

A. Yes sir, all of it.

Q. The lands around there had a crop that year?

A. Yes sir.

Q. Do you remember of any other flood conditions existing on the territory right there east of you up to the year 1915?

A. Yes sir.

190 Q. When?

A. Well, I couldn't say exactly, somewheres along in 1906 or 1907.

Q. What does your observation disclose as to when and to what extent these lands marked in this yellow portion were subject to overflow in the years that you were there up to 1915.

A. Well, that overflow wasn't near as large as the one in 1897. It didn't last as long either.

Q. You may state whether or not at any year during the twenty-one years you have been there, excepting the years 1915 and 1916, you have ever observed any flood condition existing in any year where the lands not subject to flood were not put in or cropped?

A. No, not when they were not put in. There might be a fraction now and then along the river that was not put in.

Q. Generally speaking you would say what?

A. I would say they were put in every year.

Q. And are you able to state as a general condition that these lands in this yellow designated portion up to the year 1915 were capable of being cropped from year to year?

A. Yes sir.

Q. Wheat, oats, corn, barley, and tame hay crops some places?

A. Yes sir.

Q. And wild hay crops other places?

A. Yes sir. Of course it was not all farm land along that river. They cut wild hay there.

Q. But generally speaking this land was settled up and crop raised of wheat, oats, barley and so forth?

A. Yes sir.

Q. Some places where it was a little lower where they had wild hay?

A. Yes sir.

Q. And some places they had tame hay?

A. Yes sir.

Adjournment taken until 10 a. m. September 12th, 1917.

191 Sept. 12, 10 A. M.

Pursuant to adjournment hearing resumed with all parties present.

Direct examination of Mr. Kurtz continued by Mr. Bronson:

Q. Now, Mr. Kurtz, in performing your duties as assessor in this township of Fairmount you have traversed all of this territory from year to year marked in yellow on this map situated in the state of North Dakota, and visited practically every piece of farm land situated therein?

A. Yes sir.

Q. With some exceptions in the years 1915 and 1916?

A. 1916.

Q. Now, generally, to what extent in the year 1897 was this ter-

ritory in the Red River valley, included in this yellow portion in North Dakota, settled and farmed?

A. Practically all of it.

Q. Now give a general statement, Mr. Kurtz, of the character of the farming carried on, as to what lands, generally speaking, were farmed for cereal crops, and as to what marshes there were in this territory involved, if any, giving a general résumé of the nature of the farming operations carried on?

A. Along the river there is quite a bit of wild land, and East of Blackmere, in Twon 129, Section 21, part of that is what you term a slough, quite a number of slough holes in it, also section 22 and part of 28 and some of 34. The rest I think is all good farm land.

Q. With the exception that you have mentioned the rest of the land in that territory involved in this township in North Dakota was good farm land?

A. Well there was some places along the river that was good for hay that had not been broke.

Q. To what extent were there such places?

A. I would say twenty per cent along the river was not broke.

Q. And what was being raised on these lands?

A. Wild hay grew there, more so in town 129 than in 130.

192 Q. Now generally speaking, what was the general crop conditions as to the yield in wheat, oats or barley in this territory covering a period of years from 1896 to the year 1915 as you observed it?

A. Well, I don't quite understand. You want to know what it yielded.

Q. Yes, some of these lands?

A. That is hard to tell. We had good crops and poor crops.

Q. Well what would be a normal average yield of wheat per acre in Richland county in the years 1896 to the year 1915?

A. I would say from 12 to 15 bushels.

Q. And of oats?

A. 35 to 40.

Q. And of barley?

A. 35 to 40.

Q. That means per acre?

A. Yes sir.

Q. And you may state whether or not these lands that were planted to cereal crops during any of these years, 1896 to 1915, produced such crops?

A. Yes sir.

Q. And have you had occasion to observe in the years you have been there the relative yield of cereal crops in this district affected as compared with crops raised in the rest of Richland county?

A. Well, not particularly Richland county. I threshed in three or four townships.

Q. That is in the district affected as well as that not affected?

A. Yes sir.

Q. And what is the comparison to be made, if any?

A. Why, you take in a dry year like this if we had *in* our land

in good shape we would have had a better crop along the river than they would further back.

Q. In any year during the time that you have been there from 1896 to 1915 what has your observation been from actual experience as to the productivity of lands in cereal crops in this district affected as compared with lands in the same county not in the district affected?

A. They were just as good along the river as they were further back.

193 Q. Have you in mind any year during these years that you have been there up to the year 1915 when there has been any yields of wheat exceeding this normal average you speak of?

A. Oh yes, there is times it would be more than that.

Q. Well, illustrate?

A. I don't know as I recall the years. If I remember right 1912 and 1913 were good years in there. Wheat was going from 15 to 28 bushel.

Q. In this district affected?

A. Yes sir.

Q. How was oats going?

A. From 40 to 60, some as high as 80.

Q. And barley?

A. From forty to fifty.

Q. And to what extent is corn raised in this district affected?

A. Quite extensively.

Q. And relatively—when you say extensively, how relatively?

A. Probably thirty-five acres to the quarter, 25 to 35.

Q. And what yields of corn have been produced during these years up to 1915 and 1916, as you have observed?

A. Well, I would say it averaged 20 to 35 bushel.

Q. Have you seen yields higher than that?

A. Yes sir.

Q. How high?

A. Forty-five is the highest I have known, I think.

Q. What year was that, or about when?

A. Around 1912 or '13.

Q. Now to what extent is any of this land in this district affected covered with rocks, stones or anything of that kind?

A. Why there is some stone in town 129.

Q. What sort of stone is it and how does it affect the cultivating of the land?

A. Well, it is hard to tell. They are what we call nigger-heads—hard stones.

Q. Removable?

A. Yes sir.

194 Q. Is this stone such that the land cannot be tilled and cultivated?

A. No sir. Some pieces there are stony are harder to rent than other pieces and have laid idle quite a little in that county.

Q. Now as to these farming lands in this territory which we have

heretofore described in the shaded yellow portion state, in a general way, the value of these lands per acre to the year 1915, the actual market value?

A. I would say from $50 to $65 an acre.

Q. And how did these values compare with the lands situated west of them in Richland county?

A. Well a little higher a little farther west, probably $75 to $80 an acre there.

Q. How far west?

A. Oh it begins within two miles of the river.

Q. And then westward in Richland county?

A. Yes sir.

Q. Now during the years you have been in this territory you may state generally to what extent these lands in the yellow shaded portion of North Dakota have been subject to overflow, if any?

A. How many years you mean?

Q. No, to what extent they have been subject to overflow up to the year 1915 and at what seasons of the year?

A. Why the last of March and the first of April when we have quite a bit of rainfall or snow they overflow for possibly up to ten days.

Q. And from the years 1896 up to the year 1915 you have seen occasionally some of these lands adjacent to the Bois de Sioux in this yellow designated territory on the map, exhibit 1, overflooded in the springtime?

A. Yes sir.

Q. And during the months of March and April?

A. Yes sir.

Q. Do I understand this would occur when you had seasons preceded by heavy snows?

A. Yes sir.

Q. And considerable heavy rainfall?

A. Yes sir.

Q. And this so occurred in the year 1897?

A. '97 or '98.

195 Q. I believe you testified yesterday about the snowfall condition in '97, did you not?

A. Yes sir.

Q. And have you seen it some subsequent years up to 1915 when the river overflowed for a time in the spring?

A. Yes sir.

Q. Have you any recollection of the year 1908, as Mr. Pinkney spoke about, in the summer time, of the water coming up?

A. Yes sir. I would not be positive of the year, whether it was 1907 or 1908. It was one of those.

Q. Now for what length of time would you place the extent of this flood condition upon such lands up to the year 1915—for how long a period of time would such condition of flood exist?

A. You mean in the spring of the year?

Q. Yes.

A. From eight to ten days.

Q. And up to 1915 how much of this territory have you seen overflooded at one time or at any season in any year?

A. Why in the southern part of the township it would be from two to three miles wide. In 1897 it was. And up in the other town it would be a mile or mile and half wide.

Q. And those conditions would continue for from eight to ten days?

A. Yes sir.

Q. And even during 1897?

A. In 1897 it continued probably fifteen days.

Q. And even in the year 1897 were crops raised, harvested and produced on these lands?

A. Yes sir.

Q. Similar to other years?

A. Yes sir.

Q. And in 1897 did the waters recede?

A. Yes sir.

Q. And the lands were dry in the summer?

A. Yes sir.

Q. And crops were produced that summer?

A. Yes sir.

196 Q. Crops like hay, oats, barley, wheat and corn?

A. Yes sir—well, in 1897 I don't think we raised so much corn.

Q. Now you have been, as you have stated, assessor through this district for nine years all told, and I ask you to state whether or not during any of these years you have been assessor or while you have resided there up to the year 1915 you have ever observed at any time a condition of flooding of lands in this territory heretofore designated wherein in any year crops were not produced and raised and harvested and threshed on these lands?

A. With the exception of the lands that I named there it was practically all in crop.

Q. That is some of these lands that you have named which were somewhat marshy towards the south and some of these lands which were along the river in hay land?

A. Yes sir.

Q. That is, you mentioned in your testimony a short time ago about little sections of land in the southern portion that were somewhat low and marshy?

A. Yes, some sloughs running through it.

Q. Now during all of these years up to 1915 do I understand you to state that in any year when there was a condition of overflooding, either in 1897 or any other year up to the year 1915, was there any time when all the lands that were farmed and cultivated theretofore did not raise a crop?

A. Well in 1897 it probably wasn't all in. It might have been put into late flax. I was living in the northern part of the town at that time.

Q. What do you say about the northern part?

A. That was practically all in.

Q. And crops of wheat, oats, barley and so forth raised?
A. Yes.
Q. You observed floods in 1915 and 1916?
A. Yes sir.
Q. During the time you have resided there in this district have you ever seen flood conditions of that nature and character prior to the year 1915 on these lands involved?
A. Not at that time of the year.
Q. Or remain as long as those?
A. No sir.
197 Q. Have you ever observed during the years you have lived there up to the year 1915 farms in this territory involved grown up with cat-tails the way they are now?
A. No sir.
Q. Now in the year 1915 you observed the flood conditions?
A. Yes sir.
Q. Prior to 1915 these flood conditions you have described existing in the springtime generally with the exception of 1908, the flood waters came from where?
A. South.
Q. You are acquainted more or less with this Bois de Sioux river as it flows through this territory?
A. Yes sir.
Q. It flows in what direction?
A. North.
Q. And with relation to the banks of this Bois de Sioux as compared with the banks up where the Rabbit River flows in?
A. Very low south of the Rabbit. They begin to get some banks at the Soo railroad.
Q. And then north they are higher?
A. Yes sir.
Q. The banks are relatively higher where the Rabbit River flows into the Bois de Sioux?
A. Yes sir.
Q. Now in the year 1915, you have heard the testimony of the other witnesses as to the time when this water came along?
A. Yes.
Q. Sometime in the month of July, is that correct?
A. I think it began the latter part of June.
Q. And had you previous to that time visited the territory for the purpose of assessment?
A. Yes sir.
Q. And in performing your duties as assessor what is your method of operation, visit each farm?
A. Yes sir.
Q. Inspect the buildings?
A. Yes sir.
198 Q. And you did that in the year 1915?
A. Yes sir.
Q. And when you made your assessment in the year 1915 what

conditions did you find as to the lands being put in, crops being planted and sowed?

A. In the spring they was all in.

Q. What crops were in in 1915 just generally speaking through this territory?

A. Wheat, oats, barley, flax, corn.

Q. When did you make the assessment?

A. In the month of May, possibly some in June.

Q. At that time was there any flooded conditions of land existing?

A. No sir, I drove all over the southern part.

Q. With horse or automobile?

A. Part of the time with horse and part with auto.

Q. Well, at that time, generally speaking, how much of this territory would you say on an average was into cereal crops or corn crops?

A. Well, the time I was taking the assessment they were mostly all planting corn down there. They had the ground prepared.

Q. Well, how much——?

A. I would say a majority of the land was all into crop or being put in at the time I was there.

Q. What do you mean by "a majority of the land"? Into wheat crops?

A. Yes sir.

Q. Oat crop?

A. Yes sir.

Q. Barley crop, and corn being planted?

A. Yes sir.

Q. You mean that the lands that you visited either had already been sown or crops were then being planted, such as corn?

A. Yes sir.

Q. And this constituted what proportion of the lands in the district that was put into crop?

A. I would saw seventy-five per cent of all the land along the river was into cereal crops.

199 Q. Do you recollect what your assessed valuation you were assessing these lands at in that year, 1915?

A. Just about, we assessed the lands the same every year, with the exception of last year.

Q. Well up to 1915 and in 1915 these lands in this district affected were being assessed at how much?

A. From $5 to $8.50 an acre.

Q. The assessed valuation up to 1915?

A. Yes sir.

Q. And the lands in the rest of the township were likewise how assessed?

A. Well, the whole township averaged from $5 to $8.50 per acre.

Q. That is the assessed valuation of these lands in the whole township in the years when you were assessor up to the year 1915 would average at from $5 to $8.50 per acre?

A. Yes sir, and also in 1915.

Q. Well, where were the land- you assessed at $8.50 per acre?
A. They adjoined the village.
Q. Of Fairmount?
A. Yes sir.
Q. Some in this district affected and some without?
A. No the ones assessed at $8.50 were not affected by the water.
Q. What was the highest any of the lands in this district affected were assessed at?
A. Possibly some of them went as $7.00, but not over that. Most of it $6.00 or $6.50.
Q. Was that before the flood conditions of the year 1915?
A. Yes sir.
Q. Relatively for instance, lands in Section 8—look at the map, Exhibit 1, lands in Sections 7, 8 and 9 of Township 130, Range 47, what would be the relative assessment for the year 1915?
A. I would say between $6.00 and $6.50.
Q. Were the lands in Section 7 assessed any higher than lands in Section 9?
A. Yes sir, about fifty cents higher.
Q. And the lands in Sections 31 and 33?
A. They were assessed around—well, I took the west half of 33 and assessed it at $7.50 or $8.00.
200 Q. And the east half of 33?
A. Probably assessed at $6.00.
Q. That was in 1915?
A. Yes sir.
Q. And land in Sections 29 and 28?
A. Well the quarter right here adjoining the townsite was probably $8.50 and the rest at $8.00. What we termed river land I generally assessed at $6.00 and $6.50.
Q. And the land through the western part of the township was assessed how?
A. About $7.00 or $7.50.
Q. Any lands in the western tier of the township that were assessed at $6.00?
A. No sir.
Q. Mostly $7.00 and $7.50.
A. Yes sir.
Q. Were all of these lands in the western part assessed at either $7.00, $7.50 or upwards?
A. Yes sir.
Q. Not to exceed $8.50.
A. Yes sir.
Q. Now this land of Mr. Smith's in Sections 15 and 10, do you remember the assessment of that?
A. I think his home place on Section 10 was about $7 or $7.50 and the other was either $6 or $6.50.
Q. How far does your township extent north?
A. Twelwe miles from the South Dakota line.
Q. It includes the Smith place?
A. Yes sir.
Q. Is that the Northern limit?
A. I think that is the section on the north.

Q. Well the lands in Section 3, how were they assessed—130-47?
A. I think they were assessed at $7.00.
Q. And likewise in Section 5?
A. Yes sir, probably $7.50 there.

201 Q. Now this assessment that you made in 1915 was made before the flood conditions came on?
A. Yes sir.
Q. Now state generally the flood conditions that you witnesses there in 1915 along in the latter part of June as you recollect it. The waters overspread the land how far and to what extent?
A. Right east of my place they came up to my quarter line—probably three-quarters of a mile, and south of that they spread a good deal wider, and also north of me they spread a good deal wider.
Q. How wide did you observe the river there to be during these flood conditions in this territory involved?
A. You take in the southern part it was practically over all but the last two rows of sections.
Q. That is in 29 and 32 you mean—you mean that in 1915 the flood covered territory in the southern portion of this yellow designated territory, covering sections 29 and 32 to a considerable extent?
A. Yes sir.
Q. And did you observe the stream there, how wide it was during that summer—did you have occasion to see it?
A. Yes sir.
Q. According to this map designation it would make a stream how wide in 1915?
A. Somewhere about two miles, possible two and a half at the southern end.
Q. And where your farm is situated the stream west of the Bois de Sioux would be about how wide?
A. A little better than half a mile, possibly three-quarters of a mile. And farther north of me it was wider.
Q. And where did the waters come from?
A. From the south.
Q. Which way were they flowing?
A. North.
Q. And just generally how long did this condition continue?
A. All summer until late in the fall.

202 Q. Were you down to White Rock at all that summer of 1915?
A. Yes sir.
Q. How did you go to White Rock?
A. By train—the Milwaukee.
Q. During the flood conditions?
A. Yes sir.
Q. What did you observe from the train as to the tracks or waters around?
A. At the time I was down there they had fixed up the tracks. There was no water on the track. The water was on both sides close up.
Q. This was in 1915?
A. Yes sir.
Q. Along in the summer.

A. Yes sir, I would say the latter part of July or the 1st of August.
Q. And what did you observe in White Rock as to water conditions?
A. The water was right up to the sidewalk.
Q. That is the *the* town?
A. Yes sir.
Q. How big a town is White Rock?
A. Five or six hundred.
Q. Store buildings there?
A. Yes sir.
Q. Bank building?
A. Yes sir.
Q. Elevators there also?
A. Yes sir.
Q. And what is the main road that leads into White Rock there from the east or west?
A. There is a road comes acrossed what they call part of Lake Travers, and one comes from the east in Minnesota.
Q. Is there a road running a mile south of the state line eastward into White Rock?
A. Yes sir.
Q. And likewise the same road running westward into White Rock? From Minnesota?
A. Yes sir.
203 Q. On the same line?
A. Yes sir.
Q. What shape was this road in that year?
A. I wasn't over the road.
Q. When you were in White Rock which was were the flood waters coming from?
A. From the south.
Q. Were you at the bridge east of White Rock where the Bois de Sioux river is?
A. Not east of White Rock, I walked down to where the railroad bridge was.
Q. That is where?
A. South of White Rock and a trifle east.
Q. Could you see the waters there?
A. Yes sir.
Q. Where were they coming from?
A. From the south.
Q. How far is Lake Travers from there?
A. Well, we call that body of water that comes right up just west of White Rock Lake Travers. Some call it Mud Lake.
Q. What shape were the lands in around White Rock?
A. Surrounded by water.
Q. Overflooded?
A. Yes sir.
Q. Current going which way?
A. Towards the north.
Q. What was the flooded condition of it in from White Rock west as you could observe by the eye?
A. Solid sheet of water.

Q. Flowing which way, if any?
A. Well, right where I was it was flowing north.
Q. You were in White Rock?
A. Yes sir.
Q. As you looked westward about how far did the water conditions extend there?
A. I would say it was two miles or two miles and a half acrossed to the higher land.
204 Q. The body of water was that far in width?
A. Yes sir.
Q. Now what were the crop conditions at that time in this district in North Dakota in your township?
A. They were all flooded at that time.
Q. And what shape were the wheat fields in—how far advanced was the wheat?
A. The wheat was all headed out and some of the early grain they had started cutting when the water came.
Q. That also includes some oat crops?
A. Yes sir.
Q. How was the corn at that time?
A. Well at this time there was a lot of it killed.
Q. That was in August?
A. Yes sir.
Q. By reason of the water being on it?
A. Yes sir.
Q. When the water started to come up as you have described in 1915 about how high was the corn?
A. Oh, it was possibly 3 feet—just about getting ready to shoot the tassel.
Q. And when the water was up in July was the wheat still standing or fallen down, and the oats and corn?
A. Well, the corn was down more than the other crops. You could see the other crops in the water yet.
Q. What harvesting was done on these crops that year of 1915?
A. None where the water was on.
Q. Would that include this district that was overflooded that year as you have described it to be overflooded?
A. Yes sir.
Q. And did or did not the waters remain there during the fall?
A. Well, on portions of it it remained all fall and all winter, but it went back a little.
Q. In the fall?
205 A. In October I think.
Q. What were the conditions of the flood with reference to any fall plowing or farming operations that fall?
A. You couldn't plow.
Q. Why?
A. Too wet.
Q. Did you happen to observe whether or not any of these waters froze during the winter time on the fields?
A. Yes sir.
Q. And what was the condition of this territory that was flooded in 1915 in the Spring of 1916?

A. It was flooded also.
Q. When early spring came?
A. Yes sir.
Q. Some of the waters remained over you mean?
A. Yes sir.
Q. Some of these waters that came in 1915 did not entirely go off in 1915?
A. No sir.
Q. Some remained until 1916?
A. Some froze on the fields.
Q. And did you observe the flood conditions in 1916?
A. Yes sir.
Q. And about what time of the year?
A. Well, when spring opened there was flood conditions and I think they lasted all year until very late that fall.
Q. You farmed that year in 1916?
A. Yes sir.
Q. About when would you say the flood conditions were the highest in 1916?
A. Oh, in July or August.
Q. After the floods of 1915 the waters went down somewhat?
A. Yes sir.
Q. And ice formed during the winter in places where it has not receded and it remained in 1916 and floods came on again in 1916?
206 A. It was pretty high in the month of May and June in 1915 but it didn't affect me at all, and I left forty acres there in the southwest corner to put into corn, and you couldn't plow it. in 1916. There was very little water on it but you couldn't plow it.
Q. In 1916 when these flood waters came on how high did they get?
A. Higher than they were in 1915. They covered more territory.
Q. More lands?
A. Well, one instance, I can tell you of.
Q. On your own farm?
A. Yes sir.
Q. In 1915 none of your own lands was affected?
A. No sir.
Q. And in 1916 to what extent was it affected?
A. Probably six or seven acres in the southeast corner had water on it and the rest of that forty was so wet I couldn't farm it.
Q. By reason of the flood?
A. Yes sir, there was water all east of me.
Q. How did that affect your land if the water wasn't over it?
A. It was soaked and mushy so I couldn't plow it.
Q. The water had permeated the soil under your forty acres?
A. Yes sir.
Q. Did you get any crop off it?
A. No sir.
Q. In 1916 did you make your assessment?
A. Yes sir.
Q. When did you make it?

A. Months of May and June.
Q. All over this territory?
A. All the southern part I didn't make. I notified them to come to town.
Q. But did you make it over the northern part?
A. Yes sir.
Q. How?
A. On horse back.
207 Q. In what shape were the highways?
A. Very muddy.
Q. The highways running north and south and east and west through this territory involved?
A. Yes sir.
Q. Some of them graded roads?
A. Yes sir.
Q. Some bridges over the river?
A. Yes sir.
Q. Why did you notify these men to come to town?
A. Because I couldn't reach their place on account of the water.
Q. How wide did you observe the stream of water to be when the flood was at its height, just generally speaking?
A. A couple of miles wide.
Q. State whether or not this yellow portion shown on Exhibit 1 was substantially overflooded by this flood in 1916, as you observed it?
A. Yes sir.
Q. Have you looked at this map before?
A. Yes sir. This is not quite correct. For instance, now you take Section 33 that shows that all flooded. That was not all flooded.
Q. Section 33 west of the river?
A. Yes sir.
Q. To what extent was that flooded?
A. Well about forty acres that couldn't be put in. That is my quarter, the northwest of 33. The quarter right south of me was all flooded except about sixty acres.
Q. That is the southwest of 33?
A. Yes sir.
Q. In 130-47?
A. Yes sir.
Q. Land owned by whom?
A. Mr. Geier.
Q. That was flooded to what extent?
A. All but about 60 acres.
208 Q. This yellow portion would substantially show the area affected in 1916 as illustrated by Exhibit 1?
A. Yes sir.
Q. Did you observe how any of these farmers who loved in this district were able to go back and forth from town or from their trading centers?
A. Well, I went to Mr. Waddington's and he said I couldn't get

over there unless I got a boat and that is the way they went to White Rock to get their mail and provisions.

Q. Did you see anybody using a boat?

A. Not in 1916, but in 1915 they used a boat for taking me over to Mr. Lundberg's in 34.

Q. In 1915 you went by boat to Mr. Lundberg's?

A. Yes, sir, on the highway.

Q. Mr. Lundberg lived in 34-130-47?

A. Yes sir.

Q. To make the assessment?

A. No, that was not on the assessment. I had a drainage petition—along in July sometime.

Q. Some of these farms to the north you say you visited on horse back?

A. Yes sir.

Q. For making assessments?

A. Well, I took the assessment practically all over the town that year on horse back.

Q. Were some of these high-ways covered with water?

A. Yes sir.

Q. And wasn't it possible to go by automobile or by buggy or wagon?

A. Oh, I could have went with a buggy all right, but I could go faster horse back.

Q. Some of the highways were not so overflowed that you couldn't drive on them?

A. No, I didn't take a buggy because where the highways were dry the ditches were full of water and it bothered you to cross.

Q. How deep was the water over this district in 1916?

A. From nothing to six feet.

Q. Did you visit White Rock during 1916?

A. Yes sir, several times during that summer.

209 Q. Did you observe conditions down there?

A. Yes sir.

Q. Were you in the town of White Rock?

A. Yes sir.

Q. Tell the conditions as you saw them there?

A. Well, the water was as high at it was the year before. I think that time we came by automobile from the Minnesota side.

Q. And drove into town on this east and west road?

A. Yes sir.

Q. And how were these highways leading into town, one from the east and west into White Rock being kept up and maintained?

A. The one from the east into White Rock was all right. You couldn't go over the other one with a car.

Q. The west road was impassable for automobiles?

A. Yes sir.

Q. By reason of the water?

A. Yes sir.

Q. And you went by this bridge, I presume, in going into White Rock, where the Bois de Sioux flows?

A. Yes sir.
Q. This bridge is right near White Rock is it not?
A. Probably a quarter of a mile east of the town or such a matter.
Q. Were the flood waters coming from the south?
A. Yes sir.
Q. Going in what direction?
A. North.
Q. Could you see Lake Travers to the south?
A. Yes sir.
Q. And what was the general condition of the territory to the south from White Rock, as you could see it?
A. All water.
Q. As the eye could reach for miles?
A. Yes sir.
Q. Now in 1916 did you assess this land the same as in 1915?
A. No sir.
210 Q. What changes if any did you make?
A. About four thousand acres of flooded land I assessed at $2.50 an acre.
Q. Is that the land included in this shaded portion?
A. Yes sir.
Q. Now as to the rest of the land included in the shaded portion, what was done with that?
A. It was assessed all the way from $3.00 to $5.00 an acre. The town board made a list of about 4,000 acres or a little more which I assessed at $2.50 an acre.
Q. And the balance of these lands ranged in assessment from $3.00 to $5.00?
A. The shaded lands, yes sir.
Q. And the rest of the land in the township of which you were assessor were assessed as before or additionally?
A. Some $6 and $7, $7.50, $8.00, and $8.50.
Q. State whether or not any crops were raised as you observed during the season of 1916 on these lands within the shaded portion?
A. No sir, I don't think there was.
Q. And you went over that more or less?
A. Yes sir.
Q. And why weren't crops raised that year as you observed?
A. They were covered with water.
Q. Can you state whether or not it was possible to plow and till and farm those lands in the fall?
A. No sir, it was too wet.
Q. And in the spring of 1917? What shape were these lands, generally speaking?
A. Most of them were wet.
Q. And to what extent—have they been farmed or tilled or cultivated or used this year?
A. Well, there is very little of the shaded portion into crop. What crop there is is late crop such as fodder corn and buck-wheat flax.
Q. Now I wish you would state from your observations in passing over this territory in assessing—you assessed this year too?

A. Yes sir.

211 Q. What has been the effect of these waters on this land that has been flooded as far as foul seed, or quack grass or cat-tails is concerned?

A. It is growed up to cat-tails and weeds.

Q. Any quack grass?

A. There is spots of it?

Q. Grown up to what you say?

A. Cat-tails and weeds.

Q. Does that condition continue up to the present time?

A. Why some of them has plowed it up where it was dry enough, some summer fallowed. A majority of it is still standing in cat-tails.

Q. In driving now from Fairmount south through this shaded yellow territory that was formerly covered with water in 1915 and 1916 are the farms covered with cat-tails?

A. Yes, lots of them.

Q. And to what extent, if at all, has it been possible, as you have observed it, or has there been hay crop cut?

A. This year?

Q. This year, 1917?

A. Well, the latter part of July I think quite a bit of hay has been put up along there.

Q. Where?

A. Well, on Sections 16-129 and Section 9 and section 4 and a little on 33.

Q. And were those lands that formerly had some wild hay on them?

A. Yes sir.

Q. You assessed these lands in 1917?

A. Yes sir.

Q. About the same time of the year?

A. Yes sir.

Q. How have you assessed them in 1917?

A. From $4 to $8 and acre in the township.

Q. The lowest $4.00?

A. Yes sir.

Q. The average runs in the township from $4.00 to $8.00?

A. Yes sir.

Q. The land in the territory involved would average what?

A. About $4.00. Very little of it assessed more than $4.00 this year.

Q. What were the crop conditions this year, 1917, in your township?

A. Well, where the land was dry they got it all in crop. It wasn't put in in very good shape.

212 Q. Has this been a dry or wet year?

A. Very dry year.

Q. You threshed this fall?

A. Yes sir.

Q. Ran a threshing machine?

A. Yes sir.

Q. What are the crop conditions as to crop results and yields, generally speaking?

A. Yields of grain?

Q. Yes, as to the lands in this township where you reside?

A. Wheat went from 6 to 12 bushel, oats around 20 bushel, barley 8 or 10 to 20 bushel.

Q. To what extent, if at all, have any of these lands within the shaded portion been cropped this year?

A. Very little of them. Just some put into late corn the latter part of June and July.

Q. For instance are there a few tracts or pieces here in this yellow shaded portion that have been put into late barley?

A. Fodder and barley and buckwheat, flax, millet and like of that.

Q. Along the western portion of this shaded territory?

A. Yes sir.

Q. And can you state whether or not the straw threshed this fall shows any difference between that of other years, as to whether or not it has been a dry year, as to whether it is a short or long?

A. It is very short this year, and most impossible to cut some of it.

Q. You threshed in 1915 and 1916?

A. Yes sir.

Q. And what were the crop conditions in 1915 in your township?

A. They were very good?

Q. Have you some flat land in your township not within this yellow shaded territory?

A. Yes sir.

Q. What do you mean by flat?

A. Why, level and kind of back a-ways from the river.

213 Q. And did you in 1915 thresh on lands termed "flats" where crops were raised ?

A. Yes sir.

Q. What were crop conditions there in 1915, generally speaking?

A. Good.

Q. Can you give any idea of the average yield in 1915?

A. It runs from eighteen to twenty-eight bushel of wheat.

Q. And oats?

A. We threshed as high as eighty-seven bushel of oats to the acre.

Q. In this township?

A. Yes sir.

Q. Some cover this flat land?

A. Well, it was within two miles of the river or two and a half.

Q. What were the crop conditions in 1916?

A. Not very good. We didn't thresh by the bushel crops were so poor. We had to thresh by the hour.

Q. That is what was termed a rust year?

A. Yes sir.

Q. Wheat was rusted some?

A. Yes sir.

Q. How did the rust affect the wheat or cereal crops as to the yield and weight?

A. The yield was very light—about four to six bushels to the acre.

Q. Now, generally speaking, what has been your actual observation during the years you have lived there and farmed there as to the productivity of these farm lands in this territory marked yellow on the map as compared to the territory to the west of this yellow shaded portion in raising grains?

A. They raise just as good grain as they do over further west from me.

Q. And during the years you have lived there and farmed it and been assessor since 1896 has there ever been any year up to 1915 and 1916 when crops of wheat, oats, barley and corn were not raised somewhere on this land in the yellow shaded portion?

A. No sir.

214 Cross-examination.

By Mr. Palmer:

Q. I understand you to say that the lands along this Bois de Sioux valley indicated in yellow on this map, Exhibit 1, are just as productive as the lands farther west after you get outside of the valley?

A. Yes sir, where they are broken up.

Q. In fact they are better lands, more valuable?

A. Why, not more valuable.

Q. They are better lands?

A. We consider the soil better.

Q. Prior to the year 1915 you say these lands were $50 to $65 an acre?

A. Yes sir.

Q. And that you assessed them $5, $6, and $6.50 an acre?

A. Yes sir.

Q. And you stated that the lands two miles to the west prior to 1915 were worth $75 an acre?

A. I think I said $75 to $85 an acre.

Q. That is $20 to $25 an acre more than those in the Bois de Sioux valley?

A. Yes sir.

Q. And those in the Bois de Sioux valley are better lands?

A. We consider the soil better, yes sir.

Q. You assessed those in the Bois de Sioux valley $5, $6 and $6.50 and those to the west $7.00 to $8.50?

A. They adjoined the townsite.

Q. And yet these in the valley are better lands?

A. I said we considered the soil better.

Q. Will you explain why the lands in the Bois de Sioux valley are worth $20 to $25 an acre less than those farther west?

A. Poorer location.

Q. What is the better location?

A. Farther west.

215 Q. Why is it better location?

A. It is closer to town.

Q. What town?

A. Fairmount.
Q. As you go farther west from this shaded area that land is closer to Fairmount than the land in the shaded area?
A. Well, not all of it.
Q. I am talking about the lands west of this shaded area?
A. I know what you are talking about.
Q. Well what are you talking about?
A. Land.
Q. Where?
A. Fairmount township.
Q. Whereabouts?
A. West of the shaded area.
Q. That is worth $75 an acre?
A. Yes sir.
Q. And the land in the shaded area $50 to $65?
A. Yes sir.
Q. Now I wish you would explain why you say land west of the shaded area is worth $20 to $25 an acre more than land in the shaded area, and yet the land in the shaded area is better land?
A. I didn't say it was better land. I said it was better soil. I consider it better soil.
Q. What makes land valuable?

Mr. Pinckney: Objected to as mere matter of conclusion.

A. Why, improvements on it, soil, location.
Q. Soil?
A. Yes sir.
Q. If the soil were worthless it would not make much difference about the improvements, would it?
A. Why improvements would help the valuation all right.
216 Q. Now when you fixed this assessed valuation you fixed the value of the land and the structures separately, did you not?
A. Yes sir, and then they are all added in together afterwards.
Q. Did the lands west of this shaded area have better improvements than those within the shaded area?
A. I don't think so.
Q. So it wasn't the improvements that makes the lands to the west more valuable?
A. There is good improvements to the west and good improvements in places in the shaded area.
Q. I asked you if the improvements in the shaded area are just as good as those on the lands to the west?
A. They wouldn't average as good.
Q. Why not?
A. I couldn't tell you why not. *There* are not there.
Q. But it is better land?
A. I said better soil, and I think so.
Q. And the improvements are poorer?
A. I didn't say poorer.
Q. Well the improvements are just as good?
A. I don't know how it would average up. I never averaged it

up. There is good improvements both places and poor imporvements both places.

Q. Then it wasn't the improvements that you considered in fixing these valuations, because in a general way the improvements are about the same?

A. Practically.

Q. Now what does make the difference of $20 to $25 an acre?

A. No banks along the river, I suppose and a little lower than it is west.

Q. Well what difference would that make whether there were banks along the river or not?

A. Flood times it overflows in the spring of the year.

Q. The think that makes the lands along the Bois de Sioux valley $20 to $25 an acre less valuable than those to the west is because it is subject to overflow from the Bois de Sioux river?

217 A. In the spring of the year, yes sir.

Q. Now you say the soil is better in the Bois de Sioux valley?

A. I said I consider it better.

Q. Why?

A. It is a deeper loam.

Q. Why.

A. The black dirt is deeper than it is further west.

Q. Why is the black dirt deeper?

A. I couldn't say.

Q. Isn't it because the lands are subject to overflow?

A. I couldn't say as to that.

Q. Well in a general way are the lands subject to overflow such as these are not covered with alluvial deposits from the water?

A. I couldn't say as to that.

Q. Well, do you think that the fact that they are subject to overflow helps to make the soil better?

A. I couldn't say as to that.

Q. You don't know then any reason for the soil being better on lands that are subject to overflow than lands that are not subject to overflow?

A. No sir.

Q. But yet in this case you so consider it?

A. Well, I have just considered it so on account of the depth of the soil, the black dirt, that is all.

Q. Did you observe any flooding of these lands in this shaded area in the fall of 1912?

A. No sir.

Q. In the spring of 1913?

A. No sir.

Q. In the fall of 1913?

A. No sir.

218 Q. In the spring of 1914?

A. There may have been some in the early spring, but it didn't last any time if there was.

Q. Nothing unusual in the spring of 1913?

A. No sir.

Q. Or in the fall of 1913?
A. No sir.
Q. In the spring of 1914?
A. It was a good dry spring.
Q. You observed no unusual flooding of lands in this shaded area in the spring of 1914?
A. No sir.
Q. Or at any time during the season of 1914?
A. No sir.
Q. Nor in the fall of 1914?
A. Well it rained quite a bit in the fall of 1914.
Q. I mean the flooding of these lands from the south?
A. No sir.
Q. There was none in the fall of 1914 to your knowledge?
A. No.
Q. In the spring of 1915 did you observe any unusual flooding of the lands in this shaded area?
A. No sir.
Q. Any unusual quantity of water coming from the south in the spring of 1915?
A. Not in the spring, no sir.
Q. And the first time that you observed any unusual amount of water coming from the south was in the latter part of June or the first of July, 1915?
A. Yes sir. There was water before that, but it wasn't doing any damage.
Q. Well it was nothing unusual or uncommon?
A. No sir.
Q. You say that that water came from Travers Lake?
A. Yes sir.
219 Q. How do you know that?
A. Well the Bois de Sioux starts at Lake Travers.
Q. That is the way that you arrive at that conclusion?
A. Yes.
Q. You state that in the fall of 1915 very little of this land was plowed on account of water conditions?
A. Yes sir.
Q. What were the rainfall conditions in the year 1915?
A. Well, I think it rained quite a bit the latter part of threshing time.
Q. About what would be the date?
A. Well, I couldn't say whether it was the latter part of September or the first of October. I know we was laid up quite a while.
Q. Your threshing operations were suspended on account of wet conditions?
A. Yes sir.
Q. Was there excessively wet conditions upon the lands generally in that area?
A. In the shaded area?
Q. No, take the whole county in general?
A. It didn't bother us any to move. Of course it would the first day or so after a rain. That would be all.

Q. Was there any unusual wet conditions whatever in your county, generally, or the part of it that you are familiar with during the fall of 1915?

A. I think one time we was laid up nine or ten days.

Q. Was the plowing done the same as usual?

A. Not at that time, it wasn't all done.

Q. Was it done at all that fall?

A. Yes, they plowed quite a bit.

Q. Did they plow as much as usual?

A. I think so.

Q. In the fall of 1915?

A. I think so.

Q. Who did?

A. The farmers.

220 Q. You did, did you?

A. I didn't plow as much as usual on my place, no sir.

Q. And generally speaking, Mr. Kurtz, isn't it true that the fall of 1915 was an exceedingly wet fall and that very little usual fall plowing was done on account of wet conditions in the fall?

A. Why I think there was quite a bit left in places.

Q. Well, but speaking generally, was there less done than usual on account of wet conditions?

A. I suppose there was.

Q. What percentage of a crop was raised in your county in 1915, that is in the portion with which you were familiar?

A. I don't quite understand.

Q. Well, take an average full crop?

A. Why, we had a good crop.

Q. You had a full 100% crop?

A. We had a good crop.

Q. Would you say you had a 100% crop?

A. It was better than an average crop in 1915.

Q. You heard Mr. Pinkney testify that you had about 50% crop in 1915, did you?

A. Are you talking about the yield or the land?

Q. I am talking about the land?

A. We had a good crop in 1915.

Q. You think 100% of the average crop?

A. We had better than an average crop.

Q. About 125% or 150%, somewhere along in there of the average crop in 1915?

A. I couldn't say as to that.

Q. You couldn't say how much greater than the average it was?

A. No sir.

Q. And in 1916 you say the crop was, generally speaking, through that region was very poor?

A. Yes sir.

Q. Why?

A. On account of the rust.

221 Q. What causes rust?

A. That is a question we would all like to know.

Q. Now Mr. Kurtz what do you know about the rainfall of 1916?
A. Had quite a lot of rainfall, if I remember right.
Q. Was it the highest amount that you have know- in that locality?
A. It was reported so. I don't know from my own observation.
Q. Your observation would be that it was unusual at least?
A. Yes sir.
Q. And then along in July you had a hot wave?
A. Yes sir.
Q. And wheat rusted and you had very poor crops?
A. Yes sir.
Q. Did that apply to such wheat as was planted within this shaded area or immediately adjacent to it?
A. It was all the same.
Q. After this flooding of 1915 did you make any reduction in the values for assessment?
A. My books were turned in before that. I couldn't.
Q. When were your books turned in?
A. Turned in all the way from the 6th to the 10th of June.
Q. And was there any reduction made in the valuations for that year?
A. I couldn't say positively. There was some farmers went before the Commissioners to get a reduction and I couldn't say whether they got it or not.
Q. Now in 1916 you say in making assessments you reduced 4000 acres of land in this Bois de Sioux valley down to $2.50 an acre?
A. Something like that, around 4000 acres. I wouldn't say it was exactly 4000.
Q. Who authorized that?
A. The Town Board.
Q. In your state has the Town Board authority to order reductions of that character, according to your understanding?
A. Well it was brought up to the auditor first and I asked him in regard to this land. The farmers had all been before the county commissioners and some of them didn't want a levy made at all, and I think the auditor instructed the Town Board on this thing in the first place.
222 Q. And the balance of the shaded lands were reducted to $3 to $5 and acre, the assessed valuation?
A. Yes sir.
Q. Now is it not true that your County Board of Equilization raised the assessed valuations of lands outside of those in this shaded area so that the same amount of taxes was realized so far as the county, and so far as the state was concerned, as in other years?
A. Why they raised some lands. I don't — just which ones was raised or what per cent.
Q. But it was your understanding that the taxes were so equalized that year?
A. I couldn't say.
Q. Do you say that is not true?
A. No sir.

Q. Do you say you have any information about that?
A. I have no information.
Q. Do you know whether the county or state Board of Equalization raised your assessed valuations of the lands outside of this shaded area for that year, 1916?
A. I couldn't say as to that.
Q. You haven't investigated that?
A. No sir. The chances are that the whole town was raised. They generally raised them up to around $10, that is the better land.
Q. That is so the same amount of taxes would be realized as would have been if this reduction had not been made?
A. I couldn't say whether they raised it that much or not.
Q. Take your own land for that year—was the assessed valuation raised?
A. I couldn't say. That was the first year we ever had to pay our road work in cash. It was about $20 more than it was the preceding year. I think there was an 8 mill road tax that year.
Q. Take the southeast quarter of Section 16-129-47—do you recollect who the owner of that is?
A. Mary E. Cleary.
Q. It seems to be assessed in the name of John F. Broderick?
A. Oh, the Southeast.
223 Q. Is that correct?
A. Yes sir.
Q. Is he a resident of North Dakota?
A. Yes sir, Wahpeton, N. D.
Q. Are there buildings on this land?
A. Yes sir.
Q. What did you assess the buildings at, do you recollect this year?
A. That would be pretty hard to tell.
Q. In 1916?
A. It would be pretty hard to tell.
Q. I have it here $45. Is that right?
A. I couldn't say whether it is or not.
Q. What percentage of the market value is the assessed value as fixed by you?
A. Well, we are supposed to get 25 per cent, but we never do. The highest set of buildings in the township is $275.
Q. And what percentage of the market value of the land are you supposed to fix as the assessed valuation?
A. Twenty-five per cent, but it was never done.
Q. What did you usually fix it at?
A. Well it has been running along like that from $5 to $8.50 an acre and buildings run all the way from $25 to $275.
Q. For how many years?
A. Last eight or ten years.
Q. What percentage do you figure that is of the actual value?
A. That is a custom we have had there in assessing.
Q. Don't you have a law on that subject?
A. Yes, twenty-five per cent.
Q. Aren't you governed by any law or rule?

A. That is the rule we have always went by there.
Q. You are an assessor?
A. Yes sir.
Q. Have been for years?
A. Six years.
224 Q. Don't you know anything about what the law is on that subject?
A. No.
Q. You are supposed to fix the assessed valuation at 100% of the actual market value?
A. Well, our instructions——
Q. Just answer the question?
A. I couldn't say as to that.
Q. Then you don't know what the requirements of your laws are in that regard?
A. Why, we are instructed to take 25 per cent by the auditor at the assessors' meeting.
Q. What the law is you don't know?
A. No sir.
Q. Now the valuation that you fixed upon the land, the southeast quarter of Section 16-129-47 in 1916 was $597, that is around $4.00 an acre?
A. I couldn't say.
Q. You think it may have been raised to about that amount?
A. I couldn't say. We assessed from $2.50 to $5 on the river land.
Q. You think it was raised afterwards?
A. I couldn't say.
Q. Now the valuation for 1914, do you recollect what that was?
A. No sir.
Q. Was it not $660?
A. I couldn't say.
Q. The northeast of 21-129-47, who owns that?
A. Westerman.
Q. Where does he live?
A. I don't know what his address is.
Q. Didn't you notify him of his assessment?
A. No sir, nonresidents, we have no way of knowing.
Q. Is he a non-resident?
A. I think so.
Q. Do you know what state he lives in?
A. No sir.
225 Q. The northwest of 21, do you know in whose name that is assessed?
A. Well, I couldn't say, no.
Q. I have it here, Jesse V. Griener. Where does she live.
A. Couldn't say.
Q. Is she a non-resident?
A. I think so, as far as I know.
Q. The southwest of 21—do you recollect in whose name that is assessed?

A. No.
Q. I seem to have it here Simon J. Strauss?
A. I think that is right. I think he owns a half section.
Q. Where does he live?
A. I couldn't say.
Q. He is a non-resident of the state?
A. Yes sir.
Q. Are there any buildings on Section 21?
A. Yes sir, on each quarter of the east half are the buildings.
Q. Occupied by tenants?
A. Not at present.
Q. What is that land worth?
A. That is a hard question to answer.
Q. What was it worth prior to 1915?
A. I think it was worth somewhere around $50.00 an acre.
Q. What was your valuation on it?
A. I couldn't say now.
Q. For 1915, the assessed valuation?
A. I couldn't say now.
Q. I find it here $1,453?
A. I don't know as to that. I don't think I assessed it as high as that. Is that on the half section?
Q. That is the Southwest quarter I am looking at now?
A. Well, the improvements were included in that too, I suppose.
Q. You don't think you assessed it as high as that?
A. No sir.
226 Q. Now the Northwest quarter of 21 appears to have a valuation of $1,469. Did you assess it as high*t* as that?
A. No sir.
Q. Do you remember what you assessed it at?
A. No sir.
Q. Now the southeast quarter of 15 appears to have a valuation of $960, did you assess it as high as that?
A. No sir.
Q. Do you recollect what you did fix it at?
A. I couldn't say whether that was one included in the list or not.
Q. I am talking of 1915?
A. Well, possibly I didn't assess it over $6 or $6.50.
Q. Now the Northeast quarter of 21, the valuation appears to have been in 1915, $1,516. Do you think you assessed it as high as that?
A. No sir.
Q. You think that land had a real market value in 1915 of $50 and acre?
A. I think so.
Q. Isn't it true that that entire section 21 was not entered for homestead purposes until a period of from 1891 to 1896?
A. There were people living on it in 1892, I know that.
Q. And hasn't each one of the quarter section- in 21 changed ownership a great many times?
A. Yes sir.

Q. You found in the course of assessing that land that the ownership changed sometimes every year?

A. Well, the southeast hasn't changed very much, nor the southwest, as much as the other two.

Q. The southeast hasn't changed very much?

A. No sir.

Q. Hadn't mortgages been foreclosed on it?

A. Not to my knowledge.

Q. How about the other quarters—mortgages been foreclosed on those?

A. I could-'t say as to those.

227 Q. But the other three quarters you think the ownerships have changed very frequently?

A. Quite a number of times. I notice it has been changed on the assessment list.

Q. Owned practically all the time by non-residents?

A. No, not all the time.

Q. Well, how much of the time were they owned by parties who actually lived there?

A. Well, Mr. Anderson lived there quite a while.

Q. And had a mortgage foreclosed on him and moved away?

A. I couldn't say as to that.

Q. Well, he didn't stay there long?

A. Quite a number of years.

Q. And how many years?

A. I would say five or six years.

Q. Which quarter was he on?

A. Southeast.

Q. What year did he move away?

A. I couldn't say.

Q. It was before 1915?

A. I think so, yes.

Q. And isn't it true that that section in part, Mr. Kurtz, has been what you might call trading stock?

A. I couldn't say as to that.

Q. In the real estate men's vernacular, take the northwest, that is pretty stony?

A. I broke on that quarter, I know that is a stony quarter.

Q. Think it was worth $50 and acre prior to 1915?

A. I don't know as that one is, but take the Anderson or what they call the Julene quarters. Those are considered good farms.

Q. But the owners or people who bought them stayed a very short time?

A. Since Mr. Julene and Mr. Anderson left the owners have never been on them.

Q. You undertook to say that that land in Section 21 is land that is as valuable and fertile and productive as any other land in North Dakota?

A. When did you hear me say that.

Q. Well, did you say it?

A. No sir.

Q. Now take Section 16, the southeast quarter—who owns that?
A. John Broderick.
228 Q. Has he ever lived on it?
A. No sir.
Q. Has anybody ever lived on it that owned it?
A. Just in haying time is all.
Q. Are there any buildings on there?
A. Yes sir.
Q. What is the assessed valuation of this for 1916?
A. I couldn't say.
Q. Weren't the buildings assessed at $45?
A. I couldn't say.
Q. What kind of buildings are those?
A. Not very good. Just a small house and barn holding ten or twelve horses.
Q. Any of that land broken or cultivated?
A. No, not that quarter.
Q. Ever been?
A. Not to my knowledge.
Q. Always cut for hay?
A. Not always.
Q. Why wasn't it all cut for hay?
A. Sometimes it grew up to fox-tall and they couldn't sell it.
Q. What was that land worth prior to 1915?
A. I think around $40 or $50.
Q. You think it was?
A. Yes sir.
Q. Ever have a tenant on there the year around?
A. No sir.
Q. Any rock on there?
A. Very few.
Q. Now you fixed, or there appears to be a valuation on that as I said before in 1914, of $960, do you think that that is what you assessed it?
A. I couldn't say.
Q. Do you think that is higher than you assessed it?
A. I couldn't say as to that.
229 Q. You say no part of it has ever been broken up?
A. Not to my knowledge.
Q. Then whether it is good land for raising or cultivating crops on you don't know anything about?
A. Not seeing it broken up I couldn't say. The land right west of it was broke.
Q. Take the Northeast of 16, any buildings on that?
A. No sir.
Q. Who owns that?
A. I think Broderick and Geier own that together.
Q. Ever been cultivated?
A. No sir, that is a hay quarter.
Q. Whether it is suitable for the raising or cultivating of crops you don't know?

A. It could be.
Q. Why hasn't it been?
A. I suppose it is worth more for hay Mr. Broderick puts that hay up and bales it and ships it away.
Q. Put up some there this year?
A. Yes sir, some.
Q. And some on the southeast quarter too?
A. I think so.
Q. About the usual quantity?
A. No sir, it is not all cut.
Q. Can be cut?
A. I couldn't say. I haven't been down there.
Q. Now the Northwest of 16, that I believe is owned by——?
A. Mrs. Cleary.
Q. Is that cultivated this year?
A. Partly.
Q. Into what kind of crop?
A. Well, I think there is a strip of fodder corn on there is about all.
Q. Some of it cut for hay?
A. I think she cut some hay there. I wouldn't say whether it was on that quarter or the quarter south.
230 Q. Take the Southwest quarter of 16?
A. That is the one I was speaking about. I don't know which the hay was on.
Q. Now take that Section 16, do you undertake to say that these lands are among the most valuable, fertile and productive of any lands in North Dakota?
A. They will raise just as good a crop as any lands we have around there.
Q. If they do raise a crop?
A. Well, they always do raise a crop if they are put in in season.
Q. In dry years they raise good crops?
A. Yes sir.
Q. Let me ask you about Section 9, that is the Ridell land, the East half of the Northwest and the West half of the Northeast—what was the assessed valuation of those buildings in 1916?
A. I couldn't say.
Q. I have it here, $70? Is that what you fixed it at?
A. I couldn't say.
Q. What did you consider that land worth prior to 1915?
A. It was a good farm.
Q. What was it worth an acre?
A. $50.
Q. Still on the market for that?
A. I think so.
Q. What kind of buildings are those?
A. Pretty good buildings.
Q. Occupied?
A. Not at the present time.
Q. How long since they have been occupied?
A. I think he moved out in the fall of 1915 or 1916.

Q. Who did?
A. The man Mr. Ridell had hired there.
Q. Where did Mr. Ridell live?
A. White Rock.
231 Q. He is not a resident of the State of North Dakota?
A. No sir.
Q. Has he ever lived on this land himself?
A. I don't think so.
Q. Always been in the hands of tenants as far as you know?
A. Mr. Caruthers had it a few years before. He lived there.
Q. How long did he live there?
A. Ever since he built the buildings there. I don't know just how long that is. Possibly four or five years before Ridell owned it.
Q. Was that land cultivated prior to 1915?
A. The greater portion of it.
Q. Some of it in hay?
A. Yes sir.
Q. Some cut this year?
A. I think there was some cut on that quarter.
Q. Isn't it true that that Ridell land has changed hands a great many time- since it was homesteaded?
A. No sir, I don't think so. Mr. Caruthers owned it quite a while.
Q. Any swamp on that?
A. A little ravine running through it. There is a little more land than a quarter. There is a little to the east.
Q. Running down to the river?
A. Yes sir.
Q. What is the character of that?
A. Well it is right in between the ravine and the river.
Q. Is it cultivated?
A. No.
Q. Always cut for hay?
A. Most always.
Q. Subject to overflow in the spring?
A. Well, not right in the center there. There is a ravine on one side and the river on the other. It is what they termed years ago an island.
232 Q. Rock on it?
A. Not very bad.
Q. About Section 4-129-46, lots 3 and 4, Mr. Swivel—are those next to the river?
A. Yes sir.
Q. Who is this O. O. Swivel?
A. I don't know who that is or how they got that name. It should be M. O. Swiven.
Q. Where does he live?
A. Sacred Heart, Minnesota.
Q. Has he ever lived on this land?
A. No sir.
Q. He has been a resident of the State of Minnesota and is now?
A. Yes sir.

Q. Any buildings on this land in section 4?
A. No sir.
Q. Have there ever been?
A. No sir.
Q. Any part of it cultivated?
A. Eight or ten acres at one time.
Q. How long ago was that?
A. Ten or twelve years ago.
Q. Never any part of it been cultivated since?
A. No sir.
Q. Been cut for hay?
A. Yes, at times.
Q. A tenant on it?
A. I have used it some.
Q. Pretty good piece of land?
A. No sir.
Q. Pretty poor piece of land?
A. Yes sir.
Q. What was it worth prior to 1915?
A. I wouldn't give over $25 an acre for it.
233 Q. You valued it in 1914 at $343 or that appears to have been the assessed valuation. You think that is about right?
A. I couldn't say.
Q. And the 1917 valuation was $471. Do you know how it comes that the valuation is higher over $100 in 1917 than in 1914?
A. No sir.
Q. Now the Geier land in Section 4, the East half of the West half, and the Southwest of the Northeast, and the West half of the Southeast and Lots 1 and 2—where did Mr. Geier live?
A. Section 33.
Q. He don't live on this—does he farm this land in Section 4?
A. Always has.
Q. Are there any improvements on this land in 4?
A. No.
Q. Any part of it cultivated.
A. Yes sir.
Q. How much?
A. Well, prior to 1915 there was in the neighborhood of 300 acres.
Q. Cultivated?
A. Yes sir.
Q. Clear down to the water?
A. No sir.
Q. How much was there cultivated next to the river?
A. I had a little in there.
Q. What did he do with that?
A. Cut it for hay.
Q. Subject to overflow was it?
A. Possibly there wasn't over 275 acres under cultivation as the other lot ran into the river.
Q. Was that lot subject to overflow?

A. Yes sir, in the spring of the year.
Q. Do you know when that was entered for homestead?
A. No sir.
234 Q. Wasn't it in 1889?
A. I wasn't here then.
Q. You didn't come there until 1897?
A. 1892.
Q. Was there any buildings on this land of Mr. Geier's in Section 4?
A. None whatever.
Q. Now the valuation in 1914 appears to be $2,389. Is that what you fixed it at?
A. I couldn't say.
Q. And in 1917, it appears to be $2,473. Do you know how it comes that the valuation is $100 more in 1917 than in 1914?
A. No sir.
Q. Well, is the land in good shape now? And just as valuable as ever?
A. Well, he plowed quite a bit of it this spring and summer—fallowed there so it ought to be in good shape.
Q. Good thing for it to summer fallow it?
A. Pretty hard work.
Q. I didn't ask you whether it was good for the owner—for the land?
A. If it is the right kind of summer fallowing, yes, sir.
Q. There seems to be some land in Section 33, Township 130, Range 47, I believe that is in the name of O. G. Sivel, the Southwest quarter of the Northeast quarter and lots 1, 2, 3 and 4, 156.30 acres. Is that land next to the river?
A. Yes sir.
Q. That appears to have had a valuation in 1914 of $1,029. Is that what you fixed it at?
A. I couldn't say.
Q. And in 1917 it appears to have a valuation of $1,232, about $200 more. Did you fix it at that in 1917?
A. I don't think so.
Q. What did you fix it at?
A. I couldn't say.
Q. Did you fix it somewhere near there?
A. I think less than that.
Q. How much less?
A. I couldn't say.
235 Q. Did you fix it about the same as 1914—about $1,029?
A. I couldn't say now.
Q. Do you know how it comes that the assessed valuation is $200 greater this year than in 1914?
A. No sir.
Q. Is the land in just as good shape as in 1914?
A. No sir.
Q. Is it worth less money than it was in 1914?
A. I think so.

Q. How much less?
A. That is hard to say.
Q. What do you fix it at?
A. Of course I would give just as much for it now as in 1914.
Q. Any buildings on that land?
A. Yes sir.
Q. Where are those?
A. On the north end.
Q. How far from the river?
A. Possibly three-quarters of a mile.
Q. Are those what is called the Mitzke buildings?
A. Yes sir.
Q. Are those the buildings right west of Mud Lake?
A. North a little.
Q. How far are they from the edge of Mud Lake?
A. About half a mile.
Q. The river spreads out there and makes a sort of lake or sort of muskrat slough, doesn't it?
A. Oh sometimes it spreads out that way.
Q. Now was your quarter, the Northwest of 33 overflooded some time in 1916?
A. Oh just a trifle, nothing to speak of.
Q. Do you claim any damages on account of that?
A. No sir. In this case you mean?
236 Q. Yes, sir, do you claim that your land depreciated in value on account of it?
A. No sir.
Q. Your assessed valuation for 1915 appears to be $2,315 and 1916 $2,571?
A. Yes sir.
Q. You think that is about right?
A. Yes sir, I put more improvements on it.
Q. So this little overflooding of your land in 1916 or 1915 didn't diminish the value of, Mr. Kurtz?
A. Not my land, no sir.
Q. And the southwest of 33, Mr. Geier's is that where he lives?
A. Yes sir.
Q. He got any improvements?
A. Yes sir.
Q. Just as good now as they ever were?
A. Yes.
Q. His land is worth just as much as it ever was?
A. Well, I think that is a little lower. I think his land is worth as much as it ever was.
Q. His assessed valuation for 1916 is $1,648 and 1917, $1,893. Is that the way you fixed it?
A. I couldn't say.
Q. Now take Section 28, the Northeast quarter and the north half of the Northwest quarter—they appear to be in the name of Charles R. Pinkney. Does that land border on the river?
A. No sir.

Q. Part of the northeast quarter appears to be in this shaded area indicating that it was overflooded in 1915 and 1916. Is that your recollection of it?

A. Yes sir.

Q. Was it injured considerably in 1915 and 1916?

A. Yes sir.

Q. And was worth less money in those years?

A. Yes sir.

237 Q. Than in previous years?

A. Yes sir.

Q. And were assessed for less?

A. I couldn't say.

Q. You were the assessor, weren't you?

A. Yes, sir.

Q. Well, if they were worth less you would put down the assessed valuation less?

A. I suppose so

Q. Now his assessed valuation for 1914 appears to have been $2,796, and in 1915, $3,443, 1916, $3,236, 1917, $3,348. That is his land appears to have an assessed valuation of about $600 greater in 1917 than it was in 1914. Do you know how that came about?

A. I couldn't say as to that.

Q. And it appears to have been about $500 greater in 1916 than it was in 1914. Do you know how that came about?

A. No sir, I don't.

Q. Now do you really think this land is worth any less to-day than it was in 1915?

A. Yes sir.

Q. And is worth less than it was in 1914?

A. Yes sir.

Q. How much less is it worth now than it was in 1914?

A. I couldn't say. Whatever it costs to get him back in shape.

Q. What would be your idea about the diminution in the market value?

A. $5. Some people might think it was more.

Q. But you would say $5.00 an acre?

A. Yes.

Q. Now will you explain why it is that that land being worth $5.00 an acre less in 1917 than in 1914 that the assessed valuation is about $5.00 an acre more?

Mr. Bronson: Objected to upon the ground that it assumes a state of facts not shown in the evidence and is incorrect and not within the knowledge of the witness, and it further assumes an assessed valuation based entirely upon a different state of circumstances in

238 connection with the action of the State Board of Equalization in 1916 and 1917 that do not tend to serve as any basis of valuation whatsoever but depends upon conditions peculiar to the laws of the state of North Dakota and governed by the laws of the state of North Dakota.

Q. You were assessor there?
A. Yes sir.
Q. You know nothing about how that increase came about?
A. I don't. I know I didn't increase it $5.00 an acre.
Q. Did you decrease it $5.00 an acre?
A. No sir.
Q. Now the South half of 28 appears to be in the name of J. C. Hurdelbrink?
A. Yes sir.
Q. Where does he live?
A. On the southwest quarter of it.
Q. Has he got pretty good improvements there?
A. Yes sir.
Q. What is the character of his land down next to the river?
A. He has some land that was overflowed there.
Q. And damaged considerable by the overflooding?
A. Mostly hay lands he had overflooded and a little grain too.
Q. In 1915 and 1916?
A. Yes sir.
Q. Some of his land was caught in the flood?
A. Yes sir.
Q. And damaged considerably?
A. He lost a crop where the water got on it.
Q. I am speaking about the market value of the land—was that diminished?
A. For the time being.
Q. And his assessed valuation of his land was lowered accordingly?
A. I couldn't say whether he was in that list or not.
Q. Do you know what the assessed valuation of his land was in 1914?
A. No sir.
Q. Was it worth more or less in 1914 than it was in 1916?
A. Worth more in 1914, the land was.
239 Q. His assessed valuation of that land for 1914 appears to have been $2823 and in 1916 $3189, something like $300, over $350 greater for 1916 than for 1914. You were assessor that year?
A. Yes sir.
Q. Do you know how that came about?
A. No sir.

Mr. Bronson: Objected to as assuming a state of facts not shown by the record, and counsel reading from notes in his possession based upon the action of the State Board of Equalization, assessment values of the land being purely a matter of equalization between counties in the State of North Dakota, and having no relation whatsoever to the matters of values in the county or Richland or any other county in the state of North Dakota, and which action of the State Board of Equalization is based upon enactments of the legislature for the year preceding and pursuant to constitutional provision as amended.

Mr. Palmer: In view of the statement of counsel for the complainants, and before pursuing this inquire further, I desire to ask counsel for the state of North Dakota if there is to be any claim made in this action that the State of North Dakota suffered any loss in the matter of taxes for the years 1915 and 1916 on account of this alleged flooding of the land along the Bois de Sioux valley.

Mr. Bronson: The answer to that is the pleadings speak for themselves.

Adjournment taken until 1:30 p. m.

September 12, 1917, at 1:30 p. m.

BURT KURTZ, being recalled for further cross-examination, testified as follows.

Examined by Mr. Palmer:

Q. You own also the south half of the northwest of 28, Township 130, Range 47?

A. Yes sir.

Q. Was that affected any by these floods of 1915 and 1916?

A. No, sir.

Q. In Section 27, in Township 130, of Range 47, the northwest of the northwest and the south half of the northwest and Lots 1 and 2, owned by Charles R. Pinkney; does part of that land lie adjacent to the river?

A. Yes sir.

240 Q. The whole eastern portion of that land borders on the river?

A. Yes sir.

Q. Was that land flooded in 1915 and 1916?

A. Yes sir.

Q. Seriously so?

A. Yes sir.

Q. Are there any buildings on the land?

A. 27? No, sir.

Q. For what purpose is it used?

A. I think there is a little hay land and the rest is cultivated land. I think at times he has cultivated it all, though.

Q. Where is the hay land?

A. If there is any wild hay land left it is along the river. I think there is a small portion of it.

Q. Do you think the value of this land was permanently impaired by these floods of 1915 and 1916?

A. Yes sir.

Q. And to what extent, how much an acre?

A. Well, that is hard to tell, how much an acre. If they was restored in shape the way they was before the flood they would be as good, if we were sure the flood wouldn't come back.

Q. How much do you think they were permanently impaired in value?

A. Under the conditions I wouldn't want to give anything now.
Q. You think it is worthless?
A. Almost, under the conditions.
Q. How much was it worth in 1914?
A. Around $65, I suppose.
Q. Around $65 an acre?
A. Yes sir.
Q. You were the assessor that year?
A. Yes sir.
Q. You were the assessor this year, 1917?
A. Yes sir.
241 Q. The assessed valuation of that land in 1914 appears to have been $660; did you fix that?
A. I couldn't say as I fixed it at that figure.
Q. Did you have anything to do with fixing it?
A. Yes sir.
Q. What if anything did you fix it at?
A. I wouldn't say.
Q. There is 119 acres. How much did you fix it at?
A. What year?
Q. 1914?
A. I couldn't say exactly, somewhere around 5 or 6 dollars.
Q. Well, do you think that the state board of equalization lowered your valuation for that year?
A. I couldn't say, the county board handles it first, I don't know what they did with it.
Q. I am asking you now about 1914. Are you prepared to dispute the statement that I have made that the assessed valuation in 1914 was $660?
A. No, sir, I wouldn't dispute it.
Q. Now, the assessed valuation in 1917 was $870, that is $210 greater, did you fix it at that?
A. I couldn't say.
Q. Are you prepared to dispute the statement that that was the assessed valuation for 1917?
A. I am not.
Q. And yet you say in your opinion that land was worth $65 an acre in 1914 and was totally worthless in 1917?
A. I didn't say it was totally worthless, I said I wouldn't give anything for it under the conditions.
Q. Do you think that an assessed valuation of $870 for 1917 is too much?
A. Yes sir.
Q. Why was it done then?
A. I couldn't say.
242 Q. You were the assessor?
A. Those aren't my figures.
Q. What did you fix it at in 1917?
A. I couldn't say.
Q. Do you know anything about it?
A. I can tell what I assessed, it was from $5 to $8.50.

Q. $5 an acre on 120 acres would be $600?
A. Yes sir.
Q. Did you put it at that?
A. I couldn't say.
Q. Did you put it around that figure?
A. Somewheres around $5 an acre for 1917.
Q. Did you put it at what you considered 25 per cent of its actual value under your oath as assessor?
A. No, sir, I assessed it under the old custom.
Q. What was that?
A. It was assessed all the way from $4 to $8.50 an acre.
Q. Yet when you put that land down at at least somewhere in the neighborhood of $4 or $5 an acre assessed valuation and that being supposed to be under your oath at least 25 per cent of its true value, you considered it absolutely worthless?
A. To me, yes, sir.
Q. I am not asking you, to you, I am asking you about the market value.
A. I didn't take the market value into consideration.
Q. What is your opinion of its market value at the present time?

Mr. Pinkney: He has already answered, hasn't he, a little bit ago.

A. I should hate to buy it at any value.

Mr. Palmer:

Q. I am not asking you that; I should hate to buy at at any price because I might not want it. I am asking you about its actual market value in your opinion?
A. At the present time?
Q. Yes, sir.
A. I wouldn't give over $25 an acre for it.
243 Q. You think its market value then was $40 an acre less in 1917 than it was in 1914?
A. Yes sir.
Q. And yet the assessed valuation is $210 greater?

Mr. Bronson: I object to that as calling for a conclusion of the witness and argumentative and not a true statement of the fact as shown by the record or otherwise.

(No answer.)

Mr. Palmer:

Q. We are going on with Section 27. The northeast quarter of the northwest quarter of Section 27 appears to be owned by R. A. Daue. Where did Mr. Daue live?
A. Somewhere in Minnesota, I don't know where.
Q. He is a citizen of the State of Minnesota?
A. I think so.
Q. How long since he has been a resident of the State of North Dakota?

A. 10 or 12 years, I should judge; possibly not as long.
Q. Your best information is that he has been a resident of the State of Minnesota for 10 or 12 years?
A. Yes sir.
Q. What condition has this land been in during that time?
A. Some years it has been farmed, some years it has not.
Q. Some years it wasn't farmed prior to 1915?
A. Yes sir.
Q. Why not?
A. I couldn't say.
Q. No water there?
A. No sir.
Q. No reason why it shouldn't have been farmed to your knowledge?
A. No sir.
Q. Any building on it?
A. No, sir, it is just a small tract and it is hard to rent in there, I suppose.
Q. Does it lie adjacent to the river?
A. I think so.
244 Q. Is any of it cultivated?
A. Has been.
Q. Cultivated prior to 1915?
A. Yes sir.
Q. How much of it?
A. If I remember right it has all been broken.
Q. What was that land worth in 1914?
A. Well, you take a piece like that wouldn't bring as much as a larger piece. I suppose it was worth around $40, $45 or $50.
Q. We will say $40 an acre.

Mr. Pinkney: Say $45.

Mr. Palmer:

Q. All right, $45. Did you assess it in 1914?
A. I think so.
Q. What did you figure the assessed valuation?
A. I couldn't say now.
Q. About $5 an acre?
A. Somewheres in that neighborhood.
Q. About $85 wasn't it?
A. I couldn't say.
Q. What is your opinion of its value in 1917, its market value?
A. I wouldn't give much for it.
Q. I ask your for your opinion of its market value.
A. Why, I don't think it would be worth more than $20 or $25, possibly not that much.
Q. That is, it wasn't worth half what it was worth before, in 1914?
A. Yes sir.
Q. Why?

A. It is all grown up to cattails and everything in there, and it is liable to be overflowed again.
Q. Is it liable to be overflowed again?
A. Yes sir.
Q. Is it any more liable to be overflowed again than it ever was, so far as you know?
A. I think so.
245 Q. I mean so far as you know, not as far as you think. Do you personally know of any reason why that land is not worth as much to-day as it was in 1914?
A. Why, if a man would look at it he surely wouldn't give as much for it.
Q. Simply because it has got cattails on it?
A. Yes, sir.
Q. Cattails then permanently diminish the value of land 50 per cent?
A. Well, they wouldn't sell very readily, you take a man out.
Q. I ask you if that is your opinion?
A. I think so, yes, sir.
Q. Did you fix a value on that land in 1917, an assessed valuation?
A. I think I did.
Q. What did you fix it at?
A. I couldn't say.
Q. About what did you fix it at?
A. I suppose somewhere in the neighborhood of $5 an acre.
Q. That would be $80?
A. I think so.
Q. You fixed its assessed valuation in 1917 at exactly the same figure that you did in 1914, when you considered the land was worth 50 per cent less, did you?
A. Possibly.
Q. Did you or did you not?
A. I couldn't say whether I assessed it exactly the same.
Q. Well, practically the same?
A. I think so.
Q. What did you do that for?
A. I followed the old custom of assessment.
Q. You didn't have any regard then for the actual market value of the land when you fixed this assessed valuation?
A. I never have in any of these assessments.
Q. You never did?
A. No sir.
Q. In fixing the assessed valuation of that land in that district as assessor under your oath, you never had any regard whatever for the actual market value of the land?
246 A. We assessed some higher and some lower.
Q. Just answer that question; did you ever taken into consideration, in fixing the assessed value of land, its actual market value?
A. No, sir, never figured it out.
Q. What?

A. I say, we never figured it out, what its actual value was.
Q. Nor you didn't take it into consideration?
A. No, sir, we assessed under the old custom, as *you* told you, from $5 to $8.50 an acre. It has been done that way for years.
Q. Then it woudn't make—so far as the State of North Dakota is concerned, it wouldn't make a particle of difference whether these floods totally destroyed the market value of those lands in the Bois de Sioux valley or not?
A. It might be——
Q. Would it?

Mr. Bronson: That is objected to as argumentative.

Mr. Palmer:

Q. So far as you are concerned as assessor?
A. It might be the year I assessed it last.
Q. Mr. Kurtz, if you don't take into consideration in fixing the assessed valuation of these lands the market value, it doesn't make any difference whether they have any rket value or not, does it?
A. Probably not.
Q. Now, the final assessed valuation of this land last described for 1917 is $116, is it not?
A. I couldn't say.
Q. About 50 per cent above the valuation of 1914?
A. I couldn't say as to that.
Q. You wouldn't be prepared to dispute it?
A. No, sir.
Q. Do you know how it came about?
A. No, sir.
Q. I ask you with relation to the northwest of the northeast, the northeast of the southwest and Lots 2 and 3 in Section 22,
247 Township 130, Range 47, 146.56 acres, whose name is that land assessed in?
A. J. H. Bolton.
Q. Where does he live?
A. He lies in the village.
Q. What village?
A. Fairmount.
Q. How long has he lived there?
A. Well, 25 or 30 years.
Q. How long has he owned that land?
A. 8 or 10 years.
Q. Did he live on it?
A. No sir.
Q. Did he ever farm it?
A. Yes, sir, hired it farmed.
Q. Have a tenant on it?
A. Yes, sir, at different times.
Q. Are there any buildings on it?
A. Yes sir.
Q. Was it cultivated prior to 1915?

A. Yes, sir.
Q. Every year?
A. Well, it was broken up, I couldn't say, somewheres around 8 or 10 years ago, I think.
Q. And prior to that time what was it used for?
A. Hay land.
Q. Wild hay or tame hay?
A. Wild hay.
Q. How much of it was cultivated within the last 10 or 12 years?
A. He broke it all up, practically.
Q. Cropped it every year?
A. After he broke it up, yes, sir.
248 Q. All of it?
A. Yes sir.
Q. What has he got on there this year?
A. He has got a little flax on part of it.
Q. He hasn't got any hay on it this year?
A. I don't think so.
Q. Has he got anything else except a little flax on there this year?
A. I don't think there is anything.
—. ——.
A. Buildings on it?

Mr. Bronson:

Q. You mean, any crops?
A. That is all, just some flax, I don't know just how much.

Mr. Palmer:

Q. Are there buildings on it?
A. Yes, sir.
Q. Good buildings?
A. Fair, they are not large.
Q. Was that land damaged by these floods of 1915 and 1916?
A. I think so.
Q. Its market value seriously impaired?
A. Yes sir.
Q. What do you consider the fair market value of that land in 1914?
A. $60 or $65.

Mr. Pinkney:

Q. You mean per acre.
A. Yes sir.

Mr. Palmer:

Q. What do you consider the fair market value of it in 1917?
A. $25 or $30 would be a good price.

Q. About $40 less?
A. Yes sir.
Q. What was the assessed valuation in 1914?
A. I could not say.
Q. Did you fix it?
A. I think so.
Q. At how much an acre
A. Somewheres near $5, I think.
249 Q. There is 150 acres?
A. Yes, sir.
Q. And you figured the assessed valuation, you say, about $5 an acre?
A. Somewheres around there.
Q. That would be $750 in 1914?
A. I wouldn't say as I assessed it that.
Q. Well, its assessed valuation for 1914 was $1,115, wasn't it?
A. I don't know.
Q. You wouldn't dispute that?
A. No, sir.
Q. In 1917 how much did you fix its assessed valuation at?
A. I think at $5 or $5.50; $5, I suppose.
Q. You fixed the assessed valuation in 1917 at practically the same as you did in 1914?
A. Yes sir.
Q. And you considered the land worth $40 an acre less?
A. Yes, sir.
Q. What did you do that for?
A. I have told you before, it was the custom we assessed every body.
Q. Without regard to the market value?
A. Yes, sir.
Q. Now, the final assessed valuation of that land for 1917 is $1,216, is it?
A. I wouldn't say.
Q. You won't dispute that?
A. No, sir.
Q. That is $100 greater than in 1914. Can you explain how it comes about that the assessed valuation of that land in 1917 is $100 more than in 1914 when you say its market value is $40 less?
A. I can not.
Q. You can't explain that?
A. No sir I know I didn't assess it anywheres near as high as that.
Q. You assessed it, you say, around $5 an acre in 1914?
A. Yes sir.
Q. $5 an acre in 1917?
A. Yes sir, in the neighborhood of that.
250 Q. Take the northwest quarter of Section 22, 130, 47; in whose name is that assessed? I have here Charles A. Tuttle.
A. Yes sir.
Q. Where does Mr. Tuttle live?
A. In St. Paul, I think.

Q. He is a resident and citizen of Minnesota?
A. Yes, sir.
Q. And has been for how many years?
A. I guess 6, 7 or 8 years, possibly not as long.
Q. Prior to that time did he live in North Dakota?
A. Yes, sir.
Q. Did he live on this land?
A. No, sir.
Q. Did you ever live on this land?
A. No, sir.
Q. Are there any buildings on this land?
A. No, sir.
Q. Is there any of it cultivated?
A. I couldn't say whether they cultivated any this year or not. It has been most all cultivated with the exception of the tree claim.
Q. Prior to 1915?
A. Yes, sir.
Q. By whom?
A. Well, I think it was hired, put in several years *be* the land company.
Q. By a land company?
A. Yes, sir.
Q. How long has Mr. Tuttle owned it?
A. I couldn't say, the title was changed there. I think Mr. Tuttle owned it once before and then there was a stranger, a non-resident, owned it, Mr. Shouweiler had it an——
Q. Then went back afterwards to Mr. Tuttle?
A. I think that was the way of it.

Q. What was the fair market value of that land in 1914?
251 A. I think that sold around $65 or $75 an acre last time it was sold.

Q. You think that was a fair market value of it in 1914, $65 an acre?
A. Yes, sir.
Q. What is you- opinion of its market value in 1917?
A. I don't think it is very much.
Q. What would you say in your best judgment?
A. About $25 to $35.
Q. About $40 an acre less?
A. Yes, sir.
Q. What did you fix its assessed valuation at in 1914?
A. I couldn't say now, around $5 or $6 an acre.
Q. What did you fix its assessed value at in 1917?
A. About $5 or $6.
Q. Just the same, substantially the same?
A. Yes sir.
Q. And you considered it worth $40 an acre less in 1917?
A. Yes, sir.
Q. In other words, you gave no heed or consideration whatever to the market value in fixing the assessed valuation?

A. No, sir.
Q. Then I want to ask you why you lowered the assessment or the assessed valuation in 1916?
A. I was instructed to do so.
Q. You didn't take its market value into consideration at all?
A. I was instructed to lower a certain amount of it.
Q. Why?
A. By the town board.
Q. Why did you get these instruction-? Why did the town board do that, do you know?

Mr. Bronson: *A.* That is objected to as not within his knowledge, calling for a conclusion of the witness on hearsay statements.

Mr. Palmer:

Q. Was it because the land was worthless?

Mr. Bronson: Same objection.

A. I suppose so.

252 Mr. Palmer:

Q. Why did you raise it back in 1917?
A. Because I was not instructed to assess it at those figures again.
Q. You was instructed to raise it because it was worth more?

Mr. Bronson: Same objection.

A. No sir.

Mr. Palmer:

Q. In other words, when the town board lowered it, you understood they did it because it was worth less and when they instructed you to raise it again, they didn't do it because is was considered to be worth more?
A. I didn't say that.
Q. Well, I am asking you what your understanding is of the reason why the town board instructed you to restore that to its original value in 1917?
A. They didn't ask me to restore it.
Q. What did you do it for?
A. I took it upon myself and assessed it the same way I always had.
Q. Now, the final assessed valuation for 1914 of that land was $1,267?
A. I couldn't say.
Q. Around that?
A. I couldn't say.
Q. You won't dispute it?
A. No, sir.

Q. And the final assessed valuation for 1917 was $1,146, less than $100 less, do you know how that came about?

A. No, sir.

Q. Well, I will ask you about a little tract of land known as Lot 4 in Section 22, Township 130, Range 47, some 9.07 acres, stands in the name of R. W. Daugherty, is that right?

A. Yes, sir.

Q. Where does Mr. Daugherty live?

A. Fairmount, North Dakota.

Q. Did he ever farm this land?

A. I don't think it was ever broken.

Q. What has it been used for?

A. Hay land.

253 Q. Was it hay land this year?

A. I couldn't say, I haven't been down there.

Q. What was it worth, what was its fair market value in 1914?

A. I don't know what it would be, $25 or $30 or $35, somewhere along there, I suppose.

Q. What did you assess it per acre, what did you fix the assessed valuation for?

A. In the neighborhood of $5.

Q. $46 was your final assessed valuation, wasn't it?

A. I couldn't say.

Q. What did you fix as its assessed valuation in 1917?

A. I think around $5.

Q. What do you think it was worth in 1917?

A. It is hard to say what it is worth, same as other land, I suppose.

Q. I am asking you for your best judgment.

A. Oh, $15 or $20 or $25.

Q. It is worth $40 an acre less than it was in 1914?

A. I don't know exactly as to that, whether it was worth $40 less.

Q. About half as much?

A. I should say that.

Q. And you fixed its assessed valuation just the same.

A. I think so.

Q. And the final assessed valuation for 1917 is $65, about $20 greater than 1914; do you know how that came about?

A. No, sir.

Q. I ask you about the west half of the southwest and Lot 1 in Section 22, Township 130, Range 47, owned by Charles R. Pinkney, 116.23 acres. What was the condition of that land in 1914?

A. It was cultivated.

Q. All of it?

A. I think it was all cultivated.

Q. In good condition?

A. Yes, sir.

Q. Buildings on it?

A. No, sir.

254 Q. What was its fair market value in 1914?

A. $65 or $70.

Q. What did you fix the assessed valuation at in 1914?

A. Around $5 or $6 per acre.

Q. The final assessed valuation was $779, wasn't it?
A. I couldn't say what it was.
Q. You wouldn't dispute that?
A. No, sir.
Q. Now, what did you fix the assessed valuation at in 1917?
A. About $5, per acre.
Q. Just the same as you had in 1914, substantially the same?
A. Probably just about the same.
Q. How much do you think was the fair market value in 1917?
A. $25 or $35.
Q. Not more than 50 per cent of what it was in 1914?
A. No, sir.
Q. And when you fixed the assessed valuation the same as in 1914 you didn't take into consideration this market value at all?
A. No, sir.
Q. You lowered that in 1916 to $381. Did you do that because the land was worth less than it was in 1914?
A. No, sir, I was instructed to lower it.
Q. You don't know any reason why it should have been lowered in 1816, do you?
A. The people didn't want to pay taxes on it, that was the only reason.
Q. Why?
A. It was flooded.
Q. What difference would that make?
A. It isn't worth as much when it it flooded?
Q. I thought you said what is was worth had nothing to do with it?
A. Well, we assessed the ordinary custom, all but that one year.
Q. In 1916 the market value of the land appears to have had some bearing upon the assessed valuation, Mr. Kurtz, didn't it?
A. I suppose so.
255 Q. In all other years it had nothing whatever to do with it?
A. Well, the only difference was, I was instructed to assess in the neighborhood of 4,000 acres at $2.50 an acre and I did so, and made out a list of the lands that were to be assessed that way and told me it would save a lot of work when it come to equalization.
Q. I am asking you — in 1916 the fair market value of the land appears to have had something to do with fixing the assessed valuation?
A. I think so.
Q. In all other years it had nothing to do with it whatever?
A. In a way it did.
Q. You didn't let it have anything to do with it?
A. No, sir.
Q. Now, the assessed valuation of this land that I last described in 1917 appears to have been $841, nearly $100 *dollars* greater than in 191[illegible] you say it was worth not more than 50 per cent as much. Do [illegible]ow how that came about?
A. No, sir.
Q. Now, I will ask you about the land in Section 15, belonging to

the witness Peter G. Smith, Lots 3 and 4 and the west half of the northeast quarter of Section 15, Township 130, Range 47, 113.80 acres; are you familiar with the land?

A. Quite familiar, yes, sir.

Q. Does it border on the river?

A. Yes, sir.

Q. Is it subject to overflow?

A. In the spring of the year, some of it.

Q. Was it flooded in 1915 and 1916?

A. It was flooded in 1916, I know that.

Q. Was the value seriously impaired?

A. I think so.

Q. Was its market value permanently diminished?

A. Yes, sir, I think so.

Q. Over that of 1914?

A. Yes, sir.

256 Q. It is cultivated land?

A. Well, there is possibly 15 or 20 acres on the north end that was left for hay land, the rest *if* cultivated land.

Q. Was that cut for hay this year?

A. I couldn't say, I haven't been over there.

Q. You don't know whether any of it was cultivated this last year?

A. I couldn't say exactly, when I was up there it was not plowed.

Q. What in your opinion was the fair market value of that land in 1914?

A. Oh, $50 to $65.

Q. What did you fix its assessed valuation at?

A. Somewhere around $5 or $6.

Q. Didn't you fix it nearly $7.

A. I couldn't say, I don't think it was over $6 when I assessed.

Q. Its final assessed valuation appears to have been $746, are you prepared to dispute that?

A. No, sir.

Q. What do you think was the fair market value of that land in 1917?

A. $25 to $35.

Q. Not more than half what it was in 1914?

A. Just about.

Q. What did you fix its assessed valuation at?

A. What year?

Q. 1917.

A. I suppose $5 an acre.

Q. Substantially the same as 1914?

A. Yes, sir, I think so.

Q. And at the time that you so fixed it, you considered it worth not more than 50 per cent of what it was in 1914?

A. Yes, sir.

Q. And the final assessed valuation appears to have been $827, nearly $100 greater than in 1914; do you know how that came about?

A. I suppose the county or the state raised it, something like that.

257 Q. Does the state, to your knowledge, take into consideration the market value of land at all in fixing the value for assessment purposes?

A. I couldn't say.

Q. What is your understanding about that, you have been assessor a great many years? Does the state board of equalization go by guess?

A. I couldn't say, I think they raise it by the improvements some way, I don't know just how.

Q. You don't know what they base that on?

A. No, sir.

Q. Whether they base it on the market value or not?

A. I couldn't say.

Q. Calling your attention to the northwest quarter and the west half of the southeast quarter and Lots 1 and 2 in Section 15, Township 130, Range 47, 272.87, owned by William Growe, is that?

A. Some such name as that, he is a non-resident.

Q. He is a non-resident of the State of North Dakota?

A. No, sir, I think he lives at Hankinson, I wouldn't state positively, he doesn't live in Fairmount.

Q. Did he ever live on this land?

A. No, sir.

Q. How long has he owned it?

A. Somewhere around 3 to 6 years.

Q. Prior to 1914 was it cultivated?

A. The greater portion of it.

Q. Was it damaged by these floods in 1915 and 1916?

A. Yes, sir.

Q. Borders on the river?

A. Yes, sir.

Q. Was its value substantially and permanently impaired?

A. I think so.

Q. What do you think was the fair market of it in 1914?

A. $65 or $70.

258 Q. What do you think it was in 1917?

A. $30 or $35.

Q. About 50 per cent?

A. Yes, sir.

Q. What do you think was the fair market value of it in 1914?

A. I think it was $5, in the neighborhood of that, $6, I couldn't say.

Q. What did you fix it at in 1917?

A. $5, I think.

Q. You fixed it a little less in 1917?

A. I couldn't say.

Q. Well, what is you- best recollection about it?

A. Well, it is either $5 or $6 in both years, I couldn't say which it is.

Q. You don't think you reduced it any in 1917?
A. I couldn't say as to that.
Q. What did you go by in fixing the assessed valuation in 1917?
A. The custom we had always assessed it by.
Q. What did you go by in 1914?
A. Same thing.
Q. Just a guess?
A. I told you it was the custom.
Q. If it had been the custom to put down the market value of those lands at $1 an acre, you would have done that, regardless of their value, Mr. Kurtz?
A. I suppose so.
Q. You considered that that was in keeping with your oath as an assessor and your duties?

Mr. Bronson: That is objected to as calling for a conclusion of the witness and argumentative to the witness.

Mr. Palmer:

Q. Under your oath?
A. I assessed it that way because I always had assessed it there and I think I done my duties as assessor, yes, sir.
Q. The final assessed valuation for 1914 appears to have been $2,467, at that time you think the land was worth $75 an acre. Its final assessed valuation in 1917 appears to have been $2,717, about $250 greater in 1917 and at that time you consider that it
259 was worth at least 50 per cent less than in 1914, do you?
A. Yes, sir.
Q. Do you know how it came about there was an increase in valuation of $250?
A. No, sir.
Q. You think that by these floods of 1915 and 1916 the value of that land was reduced at least 50 per cent?
A. 35 to 50 per cent, yes, sir; from 40 to 50 per cent.
Q. How much did you cut that down in 1916?
A. Cut what?
Q. The assessed valuation; how much did you cut it down in 1916 on this contract?
A. It was cut down to $2.50.
Q. The final assessed valuation as I have stated in 1914 was $2,467, the final assessed valuation in 1916 is $2,505?
A. Yes, sir.
Q. More than in 1914?
A. I couldn't say as that was in the list, that tract of land we are speaking of now, but if I remember right it was, but I wouldn't swear to it for certain.
Q. You think you cut it down to $2.50 an acre?
A. I think so, I wouldn't say that tract, but as I remember it that tract was in the list.
Q. I ask you if that was one of the tracks whose value was seri-

ously and permanently impaired by these floods of 1915 and 1916?
A. Yes, sir.
Q. That is, of your own personal knowledge?
A. Yes, sir.
Q. I will ask you about the southwest quarter of Section 15, in Township 130, Range 47. Are you familiar with that land? That appears to be in the name of J. A. Ennis.
A. Yes, sir.
Q. You are familiar with that?
A. Yes, sir.
Q. Where does Mr. Ennis live?
A. Illinois, I think.
260 Q. He is a non-resident of the State of North Dakota?
A. Yes sir.
Q. Has he ever resided in the State of North Dakota?
A. I don't think so.
Q. Has this land buildings on it?
A. No sir.
Q. Ever had?
A. Not that I know of.
Q. Is it cultivated?
A. Yes sir.
Q. How long has it been cultivated?
A. The greater portion of it has been cultivated as long as I have been there.
Q. Up to 1915?
A. Yes sir.
Q. Was this land seriously and permanently impaired in value by these floods of 1915 and 1916?
A. Yes sir.
Q. To what extent?
A. 40 or 50 per cent.
Q. From their value in 1914?
A. Yes, sir.
Q. What was the fair market value of this land in 1914 in your opinion?
A. $60 or $70.
Q. What was it in 1916?
A. About $35.
Q. About half?
A. Yes, sir.
Q. What did you fix the assessed valuation at in 1914?
A. Somewheres around $5 an acre, a little more.
Q. What did you fix it at in 1916?
A. I couldn't say whether that tract was in that list of 4,000 acre- or not.
261 Q. Yes, but you think its value was impaired 50 per cent?
A. Yes, sir.
Q. Now, the final assessed valuation of that tract in 1914 was $1,023?
A. I couldn't say.
Q. You wouldn't dispute that?
A. No, sir.

Q. And 1916, the second year of the flood, its final assessed valuation is $1,239, more than $200 greater; do you know how that came about?

A. On those assessments that you call 1915 and 1916, are those the ones taken in 1915 and 1916?

Q. No.

A. Or are they the taxes for those years?

Q. The taxes for those years.

A. They would be one year behind of the assessment roll, wouldn't it?

Q. No, I am giving you the assessed valuation for that year. You think I am giving you these figures a year behind, do you, Mr. Kurtz?

A. Well, they don't generally—why I asked, we don't generally know that until along in December and January. Take the 1917 assessment now,——

Q. Yes.

A. We wouldn't get that until along in December and January.

Q. The valuation for assessment purposes?

A. Yes, sir.

Q. You couldn't find that out until January?

A. I wouldn't say you couldn't find it out; I don't know whether the state board met, that is why I asked.

Q. Didn't you fix a greater assessed valuation in 1915 than you did in either 1914 or 1917?

A. A greater valuation in 1915?

Q. Yes, sir.

A. Than I did in 1914?

A. Yes.

A. I don't think so.

262 Q. Weren't all those lands raised, the assesed valuation in 1915?

Mr. Bronson: That is not the question you asked him, though, unless he knows. The witness can answer if he know-.

A. No, sir, I do not.

Mr. Palmer:

Q. Now, in Section 10, Lot 2 and the southwest quarter of the southeast quarter of Section 10, Township 130, Range 47, 71.10 acres, owned by B. W. Shouweiler, is that according to your recollection?

A. Yes, sir.

Q. Where did Mr. Shouweiler live?

A. In the village of Fairmount?

Q. Did he ever live on this land?

A. No, sir.

A. How long has he owned it?

A. I don't think it has been in his name over 3 or 4 years, 5 years; maybe not that long.

Q. Is it cultivated land?

A. Yes, sir.

Q. All cultivated?
A. I think all of it is cultivated.
Q. Prior to 1915, I mean?
A. Yes, sir.
Q. Buildings on it?
A. I will have to think a little, I will have to look at the map. That is the piece that has got the buildings on it.
Q. Was this land seriously and permanently impaired in value by those floods of 1915 and 1916?
A. Yes, sir.
Q. To what extent?
A. 40 or 50 per cent.
Q. What do you think was the fair market value in 1914?
A. $65 or $70.
Q. What did you fix the assessed valuation at?
A. Around $5 or $6 per acre.
263 Q. What did you fix it at in 1916?
A. I couldn't say whether it was $2.50 or $5 or $4; between $2.50 and $5.
Q. Was it cut down in 1916 on account of the flood?
A. I wouldn't say it was cut down.
Q. You cut it down?
A. I wouldn't say as I did; it might have been $5 same as it was before.
Q. If it was cut in half by that water, didn't you cut it down?
A. I couldn't say.
Q. Why did you cut it down?
A. I told you time and time again.
Q. Just because somebody told you to?
A. Yes, sir, the board of supervisors instructed me to.
Q. If they had instructed you to cut it down you would have done so?
A. Yes, sir.
Q. And if you had not been instructed you would not have regardless of whether it was under water three feet deep?
A. No, sir.
Q. As a matter of fact, Mr. Kurtz, the final assessed valuation of this tract of land in 1914 was $462; are you prepared to dispute that?
A. No, sir.
Q. Its assessed valuation in 1916 was $724, about $300 greater, in the neighborhood of $300 greater in 1916; you know how that came about?
A. No, sir.
Q. And in 1917 it was $616, about $200 greater than in 1914. You think that in 1916 and 1915 that land was not worth more than 50 per cent what it was in 1914?
A. Yes, sir.
Q. I will ask you about the west half of the northeast quarter and Lots 3 and 4 and the northwest quarter of the southeast quarter of Section 10, Township 130, Range 47; in whose name is that assessed?
A. I think *is it* in Mr. Rising's name.
Q. You are familiar with that land?

A. Quite familiar, yes, sir.

264 Q. Was that land some that was affected by the floods of 1915 and 1916?

A. I don't think there was but very little water *of* it, possibly along the edge, the bank raised there.

Q. You don't think that was much affected there?

A. No, sir.

Q. And so far as you recollect, its assessed valuation was not reduced for 1916?

A. No, sir, I don't think so.

Q. I understand you to say that this map, Exhibit 1, shows in yellow here substantially correctly the lands that were flooded in 1915 and 1916?

A. Yes, sir, partially.

Q. I will call your attention to the northeast quarter of Section 17, Township 129, Range 47; was that in the flooded area?

A. Is that in Miller's name?

Q. Yes, H. G. Miller?

A. Yes, sir, partially.

Q. Was the value of that land substantially and permanently impaired by those floods of 1915 and 1916?

A. Not all of it.

Q. Some of it was?

A. There is a ravine comes up through there from what we call the big slough that makes a curve around from the river.

Q. Comes up from the big slough?

A. There is a big slough west of White Rock; there is another branch of the river goes one way and this branch goes another way.

Q. In west of the village of White Rock there is a large slough or arm of the lake?

A. Yes, sir.

Q. And there is a ravine comes from that up through, clear up through this section 17?

A. Yes, sir, I think so.

Q. Does that ravine have water in it usually all the way up?

A. It did in 1915 and 1916.

Q. Did it previous years?

A. In the spring of the year, that would be all.

265 Q. To what *extent*, to what percentage, do you think the value of the land of Mr. Miller was damaged by those floods?

A. I think somewhere between one-third and a half I think was covered with water.

Q. How much do you think it was impaired in value, 50 per cent, the whole tract?

A. No, I don't believe I would say that much.

Q. What percentage would you say?

A. Possibly 30 per cent.

Q. What do you think the fair market value was in 1914?

A. $75.

Q. And in 1916, when the floods were there?

A. $45 or $50.

Q. What did you fix the assessed valuation at in 1914?

A. If I remember right I would say $6 or $7.

Q. It is a quarter section?
A. Yes, sir; he owns a half there but this one we are speaking of is a quarter. I don't know whether the railroad cuts out of this one or the one on the west side.
Q. Railroad cuts out of this one, I think. Well, you think it was around $6 or $7?
A. Yes, sir.
Q. What did you put it in at in 1916?
A. I couldn't say positively what that was.
Q. Considerably less?
A. I couldn't say, I think around $6 somewhere.
Q. You think you low-ed it some?
A. I wouldn't say as I lowered it.
Q. The final assessed valuation for 1914 appears to have been $1,379, you will not dispute that?
A. No, sir.
Q. And in 1916 appears to have been $1,312, substantially the same. Do you know how that came about?
A. No, sir.
Q. Is Mr. Miller a resident of North Dakota?
A. No, sir.
266 Q. Where does he live?
A. Minnesota.
Q. Whereabouts?
A. I think it is Grass Lake but I would not be positive.
Q. How long has he been a resident of Minnesota?
A. I couldn't say.
Q. Has he ever been a resident of North Dakota?
A. Not to my knowledge.
Q. The southeast quarter of Section 17, Mrs. Clarrey; does that have buildings on it?
A. Yes, sir.
Q. How long has Mr. Clarrey owned that?
A. Oh, about 8 or 10 years, I should say.
Q. Does she live there?
A. Yes, sir.
Q. Was that land seriously and permanently impaired by those floods in its value?
A. Yes, sir.
Q. To what extent?
A. 50 per cent.
Q. What did you put the assessed valuation at in 1914?
A. I couldn't say, about $6 or $7.
Q. What did you put it *in* in 1917?
A. $6 or $7, I think.
Q. Just the same?
A. I wouldn't say just the same.
Q. Substantially the same?
A. In the neighborhood between $6 and $7 somewhere.
Q. And you think its value was impaired how much?
A. 50 per cent.
Q. Now, prior to the time that Mrs. Clarrey got that land it changed ownership very, very frequently, did it not?

A. Well, I wouldn't say so. There was a very few people lived on it, Mr. Pelham lived on it for years.

Q. Did he own it?

A. Yes, sir.

267 Q. Rather in the line of trading stock, wasn't it?

A. No, sir.

Q. Owned by threshing machine companies and various non-residents?

A. I suppose where the threshing machine company got hold of it was from Mr. Pelham, prior to that Mr. Pelham owned it a good many years.

Q. Did Mr. Pelham lose it on a mortgage?

A. I don't remember.

Q. You don't think he lost it to the threshing machine company?

A. You spoke of the threshing machine company, I couldn't say whether he lost it that way or not.

Q. You were speaking about the Lundberg land, that is, the southwest quarter of Section 34, Township 129, Range 47?

A. Yes, sir.

Q. That you say you had to go to in a boat in the year 1915?

A. Yes, sir.

Q. Was the value of the land seriously and permanently impaired by these floods?

A. I think so.

Q. What do you think was a fair market value of it in 1914?

A. From $45 to $60.

Q. What is the character of the buildings on there?

A. Good buildings.

Q. How long has Mr. Lundberg been there?

A. As long as I have been in the country.

Q. Since you have been there?

A. Yes sir.

Q. What did you fix the assessed valuation at in 1914?

A. I would say $6, I think.

Q. And in 1917?

A. $5 or $6, I couldn't say just which.

Q. Substantially the same amount?

A. Yes, sir.

Q. How much do you think it was diminished in value?

A. 50 per cent.

268 Q. What did you assess it in 1916, or fix its value for assessment purposes?

A. If I remember right, I think that was one that was in the list, I wouldn't swear positively.

Q. Cut it down to $2.50 an acre?

A. Yes, sir, if I remember right.

Q. The final assessed valuation for that year appears to have been $652; it would be about $4 an acre, wouldn't it, Mr. Kurtz?

A. I don't say as I assessed it that much.

Q. It may have been assessed that much in the final valuation?

A. Yes, sir.

Q. The final assessed valuation in 1914 was $1,170?

A. I couldn't say exactly.

Q. Now, in Section 34, east half of the northwest quarter and Lots 1 and 2, Section 27, Township 129, Range 47, which appears to be in the name of Swanson.

A. J. E. Swanson.

Q. Prior to 1915, was that land improved?

A. There was some small buildings on it.

Q. But rather poor buildings?

A. Yes, sir.

Q. Are they there now?

A. I think so.

Q. Anybody living there now?

A. No, sir.

Q. Who was living there prior to 1915?

A. Two Swanson boys and two sisters.

Q. Where are they now, do you know?

A. I think they went to Canada, that is just hearsay.

Q. At any rate, they have not been resident of the State of North Dakota in the past two years, to your knowledge?

A. No, sir.

Q. So they still have the title to the land?

A. I think so.

269 Q. Now, was that land in this flooded area?

A. Yes, sir.

Q. Its value seriously and permanently impaired?

A. I don't think the value of that could have been hurt at any time.

Q. Why not?

A. It was always wet, it is what is known as the Swanson slough there.

Q. Then you don't think that could have been hurt much?

A. No, sir.

Q. That isn't one of these farms, valuable farms, that were all under cultivation prior to 1915 that you have been speaking about?

A. No, sir.

Q. The west half of the northwest of 34 in the name of Mr. Lundberg, is that correct?

A. Yes, sir.

Q. Is that improved land?

A. Most of it has been broken.

Q. Does it have any buildings on it?

A. I will have to refresh my memory on that; that has buildings on it.

Q. Was that in this flooded area?

A. Yes, sir.

Q. Was its value substantially and permanently impaired by these floods?

A. Yes, sir.

Q. What value did it have in 1914?

A. $45 to $60.

Q. Was it subject to overflow from the river?

A. Not only in the spring of the year?

Q. Had the railroad through it?

A. Yes, sir.
Q. What was the character of the buildings?
A. Good.
Q. What do you think its value was in 1916?
A. $30 to $35 an acre.
Q. About half?
A. Yes, sir.
270 Q. What did you fix the assessed valuation at in 1914?
A. In the neighborhood of $6, I think.
Q. What did you fix it in 1916?
A. I think that was $2.50, if I remember right.
Q. It is 80 acres?
A. That must be the one on the east side of the track instead of the one I meant.
Q. The west half of the northwest of 34.
A. The buildings are not on that.
Q. What value would you put on that for 1914?
A. Per acre?
Q. Yes.
A. $6, in the neighborhood of $6.

Mr. Bronson:

Q. Assessed value.
A. Yes, sir.

Mr. Palmer:

Q. And what did you say it was in 1916, you put it?
A. If I remember right it was $2.50.
Q. What did you put in at in 1917?
A. $5, I think.
Q. You think $5?
A. $5 or $6.
Q. Substantially the same as 1914?
A. Yes, sir.
Q. In 1914 the assessed valuation appears to have been $585, which would be about $7 an acre, Mr. Kurtz, and in 1916 it appears to have been $326, or about $4 an acre; do you know how that came?
A. No, sir.
Q. You think you assessed it only $2.50?
A. Yes, sir.
Q. The northwest quarter of Section 33, Township 129, Range 47, appears to be in the name of A. Waddington?
A. Yes, sir.
271 Q. Where does Mr. Waddington live?
A. I don't know where he lives.
Q. He is not a resident of the State of North Dakota to you- knowledge?
A. No, sir.
Q. Have you no information as to where he lives?
A. No.

Q. Any improvements on this land?
A. Yes, sir.
Q. What kind of buildings?
A. The house is good but the barn and grainaries are small.
Q. Anybody living there?
A. I don't think there is at the present time.
Q. When did they cease to live there?
A. I think they moved out either in the fall of 1915 or spring of 1916, I wouldn't say which.
Q. That was just a tenant?
A. Yes, sir.
Q. Was this land in the flooded area in 1915 and 1916?
A. I don't think there was much water on it, it is kind of an elevation right there.
Q. What is it, rocks?
A. No.
Q. It has a kind of an elevation, what is done with that elevation, is it cultivated?
A. Yes, sir.
Q. Cut to hay?
A. It is all cultivated.
Q. Do I understand you to say that the land that is shaded here in yellow is the land that was flooded?
A. Yes, sir.
Q. Damaged?
A. Yes, sir.
Q. Do I understand you to say that this northwest quarter of Section 33, was not damaged?
272 A. I don't say it wasn't damaged; I said there was very little water on it.
Q. How much do you think it was damaged, what proportion of its value?
A. It was damaged so it could not be plowed for two years but there was very little water on it.
Q. What percentage of its value, I say?
A. I should say 25 or 35 per cent.
Q. Cut down to 25 or 35 per cent?
A. Yes, sir.
Q. And in assessing it for 1916, you cut it down?
A. I don't think that tract was in the list that I cut down.
Q. Did you bump it up a little?
A. I don't think so.
Q. The assessed valuation for 1914 appears to have been $1,425 and in 1916, $1,843. You won't dispute those figures?
A. No, sir.
Q. Do you know how that came about?
A. No, sir.
Q. That is a difference of about $400 in the assessed valuation, you don't think you raised it any?
A. No, sir.

Q. And in actual value you think it was cut down 25 to 35 per cent?
A. Yes, sir.
Q. The southwest of section 33?
A. Baker's?
Q. Appears to be in the name of John Bruns, it that correct?
A. Yes, sir.
Q. Where does Mr. Bruns live?
A. He lives on there, on that quarter.
Q. Does he live on that quarter?
A. Yes, sir.
Q. Is he still living there?
A. He was this spring.
273 Q. He lived through the flood?
A. Yes, sir.
Q. Both years?
A. Yes, sir.
Q. Was this southwest quarter of Section 33 flooded in 1915 and 1916?
A. It wasn't all covered with water.
Q. Was part of it covered with water?
A. Yes, sir, a portion of it; the rest of it was very wet, though, they couldn't farm it.
Q. You think its value was seriously and permanently impaired by those floods?
A. Yes, sir.
Q. What do you think was the fair market value in 1914?
A. $50 or $60.
Q. What did you assess it at?
A. 1914?
Q. Yes.
A. $6 or $7, I think.
Q. And what do you think was its fair market value in 1916?
A. Oh, $30, $35.
Q. About 50 per cent loss?
A. Yes, sir.
Q. What did you fix its assessed valuation at in 1916?
A. I think $6 or $7.
Q. You think you left it up in 1916 just the same as it was before?
A. I think so.
Q. But its value was cut in half by the floods?
A. Yes, sir.
Q. And as a matter of fact, the final assessed valuation for 1914 was $1,377 and in 1916 it was $1,743; are you prepared to dispute those figures?
A. No, sir.
274 Q. Do you know how it came about there was nearly $400 increase in the assessed valuation of 1916 over that of 1914?
A. No, sir.
Q. You didn't do it?
A. No, sir.

Q. I ask you about the west half of Section 32, Township 129, Range 47, and it seems to be in the name of J. M. Kenzelman; was that in this flooded area?

A. Yes, sir, part of it.

Q. Appears to have been all in according to this map, practically all?

A. I don't know where the buildings are. There is a ridge right along there where the buildings were on the west side.

Q. On the southwest corner there is a little piece that was not in the flooded area?

A. Yes, sir.

Q. The rest was flooded?

A. Yes, sir.

Q. And quite seriously?

A. Yes, sir.

Q. Was its value seriously and permanently impaired?

A. Yes, sir.

Q. Is that an improved farm?

A. It is fenced, I think.

Q. Any buildings on it?

A. No, I don't think so.

Q. Where does Mr. Kenzelman live?

A. I couldn't say. There were some old buildings at one time, they are not there any more.

Q. So far as you know Mr. Kenzelman is not a resident of the State of North Dakota?

A. No, sir.

Q. Is the land in a state of cultivation?

A. Been very little broken on that place.

Q. What do they use it for?

A. Pasture and hayland.

275 Q. What is the character of the land, is it stony?

A. Some stone in it, yes, sir.

Q. Is it swampy?

A. The eastern portion of it, where the slough runs through is.

Q. What do you think its fair market value was in 1914?

A. $40 or $50.

Q. $40 or $50?

A. Yes, sir.

Q. What do you think it was in 1917?

A. $20 or $25.

Q. Cut down to a half?

A. Yes, sir.

Q. What did you put in the assessed valuation at in 1914?

A. $6, I think, in the *b*eighborhood of that.

Q. $6 for the half section?

A. Yes, sir.

Q. What did you put it in in 1917?

A. I couldn't say whether that was in the list at $2.50 or not.

Q. I am not speaking about 1916, I am asking you about 1917?

A. I think I put it in at $5, if I remember right, $5 or $6, between $5 and $6.

Q. Did you lower it some for 1914?

A. I couldn't say, either $5 or $6.

Q. As a matter of fact, Mr. Kurtz, the final assessed valuation for 1914 was $2,534 and in 1917 it was $2,784, is that substantially correct do you think?

A. I couldn't say.

Q. You won't dispute it?

A. No, sir.

Q. Something like $200 greater; do you know how that came about?

A. No, sir.

Q. Now, the east half of the southeast and the northeast quarter and the west half of the southeast of 32, Township 129, Range 47, I think that comprises substantially the balance of Section 32, was that in the name of J. W. Brieden?

276 A. Yes, sir.

Q. That is the way you recollect it, is it?

A. Yes, sir, the description is divided up on that, it is just the same as the east half, though.

Q. Same as the east half of the section?

A. Yes, sir.

Q. Where does Mr. Brieden live?

A. I couldn't say.

Q. He is not a resident of North Dakota?

A. I don't think so.

Q. Has he ever lived on this land?

A. Not to my knowledge.

Q. Are there any improvements on it?

A. Yes, sir.

Q. What character of improvements?

A. House and barn and grainary.

Q. Would you call them good buildings or poor buildings?

A. There are quite old buildings, not very large.

Q. It is a tenant farm?

A. Yes, sir.

Q. Rather in poor condition?

A. Yes, sir.

Q. What is the character of the land, is it rocky, stony?

A. That piece is not very rocky; there is a little rock on it.

Q. Swampy?

A. You take the northwest corner of it is quite swampy.

Q. Was that land overflosed in the floods of 1915 and 1916?

A. Yes, sir.

Q. Was it- value seriously and permanently impaired?

A. I think so.

Q. What do you think it was in 1914?

A. $50.

277 Q. $50 an acre?

A. Yes, sir.

Q. In 1916 what do you think it was worth?
A. About half as much.
Q. What did you put its assessed valuation at in 1914?
A. I couldn't say exactly, something in the neighborhood of $6 or $7, $5 or $6 or $7.
Q. What did you put it at in 1916, the year of the flood?
A. Somewheres between $2.50 and $7; I don't remember whether that was one in the list the board gave me or not but I think it was.
Q. You think it was?
A. Yes, sir; I wouldn't swear to it.
Q. Part of the lands to be cut down. It was flooded, you know that?
A. Yes, sir.
Q. And its value was cut down 50 per cent, substantially the same as all these you did reduce to $2.50, wasn't it?
A. Well, this wasn't entirely flooded.
Q. Well, but it was just about as bad as the ones you did cut down?
A. Yes, sir.
Q. As a matter of fact, the assessed valuation in 1914 was $2,112 and in 1916, $2,933, about $800 higher. Do you know how that came about?
A. No, sir.
Q. Did you do it?
A. No, sir.
Q. But you think its value was actually cut down 50 per cent?
A. Yes, sir.
Q. What did you do in this list, did you cut down the fellows that live there and left the others that were non-residents where they were before?
A. I didn't have nothing to do with the list.
Q. You didn't make any inquiry about it?
A. No, sir.
Q. Whether it was fair or just or in accordance with facts or not?
A. They had a board of equalization go through it after my books were through.
278 Q. I say, you didn't pay any attention to whether it was fair or just or correct or not, did you?
A. No, sir.
Q. Didn't you care anything about that?
A. I suppose I did in a way.
Q. You did care?
A. I suppose so.
Q. Why didn't you cut down this land same as you did the rest of it?
A. I don't know but what I did.
Q. Somebody raised it $800, you didn't do that?
A. No, sir.
Q. Now, in Section 29, the east half of the northwest and the northeast of the southwest of Section 29, Township 129, Range 47, Mr. Sauter's farm, was that in this flooded area?
A. A portion of it, I think all but the west side.

Q. Does he own all of the east side of 29?
A. No, I think Mr. Waddington has a quarter in there.
Q. Sauter's farm is over on the west side?
A. He has some on the east, too. I think he owns all of the section with the exception of the southeast quarter.
Q. Now, I will ask you about his land on the west which I have just described.
A. The west half?
Q. On the east side of the west half of that section, you recall that land?
A. The description is kind of changed around to the way I have been used to.
Q. Is this the way you assessed it?
A. I don't think it was described in the quarter that way.
Q. You recollect whether this part of his land was flooded in 1915 and 1916?
A. Where does that come, on the east side or west side of the section?
Q. Was that flooded in 1915 and 1916?
A. I wouldn't say it was covered with water, it was very wet.
Q. Value impaired?
A. Yes sir.
Q. What do you consider the land worth in 1914?
279 A. $60 or $65.
Q. And in 1917?
A. About half as much.
Q. It has no buildings on it?
A. No, that piece has not.
Q. What assessed valuation did you give it in 1914?
A. Somewheres around $6 or $7.
Q. And in 1917?
A. Somewheres around $6 or $7.
Q. Just the same as you did in 1914, substantially?
A. Yes, sir.
Q. Now, the west half of the west half of 29, that appears to be in the name of Mr. Sauter, was that in the flooded area?
A. A portion of it.
Q. Was its value seriously and permanently impaired?
A. Yes, sir.
Q. What do you think it was worth in 1914?
A. $60 or $70 an acre.
Q. And in 1917?
A. About half as much.
Q. What assessed valuation did you give it in 1914?
A. $6 or $7.
Q. And in 1916.
A. I couldn't say exactly whether that was one on the list or not. If it was not it was assessed $6 or $7.
Q. You think it ought to have been cut down in 1916?
A. Possibly.
Q. Well, what is your idea about it, do you think it ought to have been? You say it was impaired in value 50 per cent.

A. Yes, sir, if it wasn't cut it ought to have been.

Q. As a matter of fact, the assessed valuation for 1915 was $2,069, for 1916 it was $1,990, substantially the same, wasn't it?

A. I couldn't say.

280 Q. Now, does Mr. Sauter live there on this land?

A. No, sir, not on this land.

Q. Does he live in that neighborhood?

A. He lives on the forty in Section 20.

Q. The northeast of the southeast?

A. He has 40 acres in there.

Q. The northeast quarter and the southeast quarter of the southwest of 29, that is where Mr. Sauter lives?

A. He lives on the southeast 40 of the southwest quarter.

Q. He has a very fine prosperous looking place?

A. Yes, sir.

Q. Very nich buildings?

A. Yes, sir.

Q. Keeps a great deal of stock?

A. Yes, sir, did up to those years.

Q. Isn't he keeping a great deal now?

A. No- a great deal.

Mr. Bronson:

Q. Up to when, did you say?

A. Up until the floods came.

Q. 1915 and 1916?

A. Yes, sir.

Mr. Palmer:

Q. Was his land injured by the flood?

A. Yes, sir.

Q. What valuation did you give this land of his in 1914?

A. $6 or $7, I think.

Q. What did you give it in 1917?

A. I couldn't say, either $6 or $7.

Q. What did you give it in 1916?

A. Same, I think.

Q. Didn't you cut it down in 1916?

A. I don't think I did.

Q. Why not?

281 A. I couldn't say why I didn't do it now.

Q. Do you think its value was permanently and substantially impaired?

A. No, this piece of land was not damaged but very little. Just a slough run across one corner of it and the rest of it is on a raise where the buildings are.

Q. Take the northeast quarter of Section 28, Township 129, Range 47, in the name of L. D. Butts, is that the way you recollect it?

A. I think so.

Q. Do you call that piece of land to mind?

A. I know about where it is.
Q. Does Mr. Butts live on it?
A. No, sir.
Q. Where does he live?
A. I couldn't say.
Q. Is he a non-resident of North Dakota?
A. I think so; no, I believe I heard that he lived in North Dakota, I couldn't say.
Q. Any buildings on this land?
A. No.
Q. Ever been any buildings on it?
A. Yes, sir, years ago.
Q. There wasn't any buildings there in 1915?
A. No, sir.
Q. Was it cultivated prior to 1915?
A. A portion of it.
Q. By whom?
A. I think the name was Caldwelder.
Q. He was just a tenant?
A. Yes, sir.
Q. How much of it was cultivated?
A. Oh, I should say around 100 or 120 acres. I know there was a piece of hay land, I don't know how much.
Q. Was this land flooded in 1915 and 1916?
A. Yes, sir.
Q. Was its value seriously and permanently impaired?
A. Yes, sir.
282 Q. What do you think it was worth in 1914?
A. About $50.
Q. What do you think it was worth in 1917?
A. $20 or $25.
Q. What was it worth in 1916?
A. The same.
Q. Not over $20 or $25?
A. No, sir.
Q. Was it pretty badly flooded, this quarter section?
A. Yes, sir.
Q. You say that Butts did not live around there anyway?
A. No, sir.
Q. You didn't cut him down in 1916?
A. I couldn't say whether he was one I cut or not.
Q. In fact, the assessed valuation appears to have been $1,023 and in 1914 and in 1916, $972, very nearly the same?
A. Yes, sir.
Q. Did you have anything to do with that, fixing those valuation-?
A. I assessed the first valuation, yes, sir.
Q. Did you assess the second one?
A. Yes, sir.

Mr. Bronson:

Q. You mean, the second year?

Mr. Palmer:

Q. No, 1916?
A. Yes, sir.
Q. Why didn't you cut him down along with the rest?
A. I couldn't say now.
Q. You can't give any reason for it?
A. No, sir.
Q. Was it because he didn't live around there?
A. No, sir.
Q. In 1917 it appears to have been $1,124, about $100 greater than in 1914. You think it was still only worth about 50 per cent of what it was in 1914?

A. Yes, sir.

283 Q. Did you have anything to do with raising the assessed valuation $100?

A. No, sir.
Q. Now, the east half of the southwest and the west half of the southeast and the east half of the west half of the southwest of Section 28, Township 129, Range 47, containing 197.90 acres and owned by John A. Waddington, are you familiar with that land?
A. Yes, sir.
Q. Was that in this flooded area?
A. Yes, sir.
Q. Was that flooded in 1915 and 1916?
A. Portions of it.
Q. Badly flooded and injured?
A. Yes, sir.
Q. How much do you think it was diminished in value?
A. 50 per cent.
Q. What did you fix the assessed valuation at in 1914?
A. Oh, somewheres around $5 or $6.
Q. What did you put it in 1916?
A. I couldn't say.
Q. Did you cut it down?
A. I couldn't say.
Q. Well, if it was affected?
A. I couldn't say whether I cut it down or not.
Q. Does Mr. John A. Waddington live there?
A. No, sir.
Q. He doesn't live there?
A. No, sir.
Q. Where does he live?
A. I couldn't say.
Q. Do you know whether he is a resident of North Dakota?
A. I couldn't say; I assessed that land to this brother, I believe.

284 Q. His assessed valuation in 1914 appears to have been $1,550, and in 1916, the year of the flood, $1,814, somewhere in the neighborhood of $300 more at the time of the flood. You don't dispute those figures?

A. No, sir.
Q. Do you know how that came about?
A. No, sir.
Q. You don't know why it wasn't cut down?
A. No, sir.
Q. The northwest quarter of Section 28, Township 129, Range 47, assessed in the name of Simon J. Strauss, do you cal- that land to mind?
A. Yes, sir.
Q. Is Mr. Strauss living there?
A. No, sir.
Q. Where does he live?
A. I couldn't say.
Q. Is he a resident of North Dakota?
A. I don't know.
Q. You don't know anything about that?
A. No, sir.
Q. Now, was that land flooded?
A. Yes, sir.
Q. And its value seriously impaired?
A. Yes, sir.
Q. What diminution in value do you think that suffered?
A. 40 or 50 per cent.
Q. What did you fix the assessed valuation at in 1914?
A. I think in the neighborhood of $6.
Q. And in 1917?
A. I couldn't say whether it was in the——
Q. I am not asking you about 1916; I am asking about 1917.
A. Probably the same as the other, I think.
Q. You think its value was diminished 50 per cent?
A. Yes, sir.
Q. It appears the final assessed valuation for 1914 was $1,056 and in 1917, $1,146, nearly $100 greater. You do not dispute these figures?
A. No, sir.
Q. Do you know how that came about?
A. No, sir.
Q. Do you think the land is still worth only half what it was in 1914?
A. Yes, sir.
Q. Any buildings on it?
A. No, sir.
Q. Is it in a state of cultivation?
A. No, sir.
Q. Ever been cultivated?
A. Yes, sir.
Q. When was it cultivated?
A. Either 1914 or 1915 the last time, possibly it was 1913 or 1914, I wouldn't say exactly.
Q. Used for hay before that?

A. Oh, no, it was broke years ago, I broke it on that quarter when I worked to Blackmere's.

Mr. Bronson:

Q. Give the time?
A. When I broke it?
Q. Yes.
A. It was broke back in 1892 or 1893.

Mr. Palmer:

Q. It had been broken and has gone back?
A. It wasn't all broken, never was.
Q. But what you did *brake* went back, did it?
A. It was cultivated for a good many years.
Q. Well, just how long did it remain uncultivated?
A. I couldn't say exactly.
Q. Why, what was the matter with it?
A. I don't know as there is anything the matter with it.
Q. Was it wet?
A. There is a slough run through that, where we left the hay land.
Q. What do you think that was worth in 1914?
A. Around $50 an acre.
286 Q. What do you think it was worth in 1917?
A. About half as much.
Q. In 1916?
A. About half as much.
Q. As a matter of fact, the assessed valuation in 1914 was $495 and in 1917, $544; you don't dispute those figures, do you?
A. No, sir.
Q. Do you know how that came about?
A. No, sir.
Q. Did you cut it down in 1916?
A. I couldn't say.
Q. That is owned by L. D. Butts; did he live around there?
A. I thought you were talking about the Strauss land.
Q. I didn't say Strauss, Mr. Kurtz, east half of the southwest of 28.

Mr. Bronson: You were talking about the Strauss land.
Mr. Palmer: I finished with the Strauss land.

Q. What did you say about Mr. Strauss, does he live around there?
A. I don't know where he lives.
Q. You don't know whether he is a resident of North Dakota or not?
A. No, sir.
Q. What do you know about Mr. Butts, is he a resident of North Dakota?
A. I have hear- he was, I don't know where he was.
Q. Did you cut him down in 1916, the east half of the southeast of 28?
A. I don't know whether I did or not.

Q. This east half of the sout-east of 28, if you have a misunderstanding about that, in the name of L. D. Butts, do you call that to mind?

A. Is that 80 or 160?

Q. That is an 80.

A. Yes, sir, I recall that to mind.

Q. Culivated?

A. The greater portion of it.

Q. Buildings on it?

287 A. No, sir.

Q. Was that land flooded in 1915 and 1916?

A. Yes, sir.

Q. Its value impaired?

A. Yes, sir.

Q. What do you think it was worth in 1914?

A. About $50.

Q. What was it worth in 1917?

A. Half as much.

Q. And the assessed valuation for 1914 is $495 and in 1917 it was $544, wasn't it, Mr. Kurtz?

A. I don't know.

Q. You wouldn't dispute those figures?

A. No, sir.

Q. Do you know how it came about it was raised?

A. No, sir.

Q. The west half of the southwest quarter and the southwest quarter of the northwest quarter and Lot 3 in Section 27, Township 129, Range, 47, assessed in the name of L. D. Butts, do you call that land to mind?

A. Yes, sir.

Q. That lays right along the river, does it?

A. Yes, sir.

Q. Was that flooded?

A. Yes, sir.

Q. Is that a cultivated farm?

A. Partly.

Q. Any buildings on it?

A. Yes, sir.

Q. Where are the buildings?

A. They are situated about 30 or 40 rods from the north end of it.

Q. Are the buildings occupied?

A. No, sir.

288 Q. How long since they have been occupied?

A. It must be 5 or 6 years.

Q. 5 or 6 years since anybody lived in them?

A. Yes, sir.

Q. Are they good buildings?

A. They are small but fairly good buildings. 5 or 6 years ago Mr. Quidding had that place. All the time that he worked it there wasn't anybody living there.

Q. When did he get rid of it?

A. I don't think he owned it, he just rented it.

Q. Hasn't anybody been cultivating it since Quidding left it?
A. I think Mr. Quidding left about the time of the flood.
Q. 1915?
A. I think it was either in the fall of 1915 or the spring of 1916, such a matter. No, it was in the spring of 1915 that he left. I wouldn't say positively.
Q. If he left in the spring of 1915, that was before the flood got him?
A. Yes, sir.
Q. Do you think that the value of this land was seriously and substantially impaired by those floods?
A. Why, the western portion of it, I think, was damaged.
Q. That is the part away from the river?
A. Yes, sir.
Q. How about the part at the river?
A. That is very little.
Q. It couldn't be damaged very much?
A. No, sir.
Q. What do you think that land was worth in 1914?
A. It wasn't worth over $30 or $40.
Q. What was it worth in 1917?
A. About half as much.
Q. What was the assessed valuation of the land in 1914 according to your figures?
A. I couldn't say.
Q. $5 an acre?
289 A. $5 or $6 an acre, I should judge.
Q. And in 1917?
A. Same.
Q. As a matter of fact, the assessed valuation for 1914 was $1122 and for 1917 it was $1,160; are you prepared to dispute those figures?
A. No, sir.
Q. Do you know how that came about?
A. No, sir.
Q. I want to ask you some more about Section 27, east half of the southwest and Lots 1 and 2 in the name of J. A. Swanson; do you call that land to mind?
A. Yes, sir.
Q. Some 86 acre-; are there buildings on it?
A. Not on that, no, sir.
Q. Have there ever been any?
A. Not to my knowledge.
Q. Is the land cultivated?
A. A little strip of it.
Q. What portion of it, about?
A. I wouldn't say over 10 acres.
Q. Any more ever been cultivated?
A. Not to my knowledge.
Q. Is that a good piece of land?
A. No, sir.
Q. A very poor piece of land?
A. Yes, sir.

Q. Lies along the river?
A. Yes, sir.
Q. Subject to overflow?
A. Yes, sir.
Q. What was its value in 1914?
A. I don't know what it would be worth, not over $20.
Q. What was it worth in 1916 with the flood conditions?
A. It was practically worth nothing then.
290 Q. The assessed valuation in 1914 appears to have been $112 for the tract and in 1916 $276; do you know how that came about?
A. No, sir.
Q. It was nearly three times as much when it was worth nothing as it was when it was worth $20, when it was dry. You can't explain that?
A. No, sir.
Q. And in 1917 the valuation appears to have been $620; can you explain that?
A. No, sir.
Q. Is Swanson a resident there?
A. He was up until two years ago, I think it was.
Q. Did he live on this land?
A. He lived on the other 80.
Q. Do you know where he has been during the last two years?
A. No, sir.
Q. Is that the man you heard had gone to Canada?
A. Yes, sir.
Q. That was about two years ago?
A. Yes, sir, two or three years ago.
Q. Now there is Lot 4, or it may be described as the Northwest of the northwest of Section 27, Township 129, Range 47, 47.5 acres, assessed in the name of Fritz Quidding, do you have that land in mind?
A. Yes, sir.
Q. Is that along the river?
A. Is there a lot in there?
Q. Well, it may be described either way, either as a lot or a forty.
A. Yes, sir, it is along the river.
Q. Subject to overflow?
A. Yes, sir.
Q. Buildings on it?
A. In 27, that is?
Q. Yes.
A. No, sir, there is no buildings on it.
Q. Cultivated?
291 A. Partly.
Q. How much of it?
A. Oh, I think there is about 10 or 15 acres.
Q. Is that all that has ever been cultivated?
A. I think so.
Q. A good piece or poor piece of land?

A. A poor piece of land.
Q. Always has been?
A. Yes, sir.
Q. Do you know what the assessed valuation was in 1914?
A. No, sir.
Q. What was the market value?
A. $25 or $30.
Q. What was the assessed valuation in 1917, do you know?
A. I couldn't say whether that was on the list—1917? Probably $5 or $6.
Q. What do you think its market value was in 1917?
A. Oh, I suppose $20 or $25.
Q. About the same as before? You don't believe its value was very much impaired?
A. Not a great deal, not only the plowed land.
Q. You don't think the balance of it could have been impaired very much by almost anything?
A. No, sir.
Q. Now, the assessed valuation in 1914 was $238 and in 1917, $341; you do not dispute those figures, do you?
A. No, sir.
Q. I call your attention to the west half of the west half and the east half of the northwest quarter and the northwest quarter of the southwest quarter of Section 20, Township 129, Range 47, 280 acres, which appears to be assessed in the name of C. C. Andrews.
A. Yes, sir.
Q. Do you call that land to mind?
A. Yes, sir.
Q. Where does Mr. Andrews live?
292 A. Lives at Fairmount.
Q. He doesn't live on this land?
A. No, sir.
Q. Does he farm the land?
A. No, sir; he has bought a farm just east of town.
Q. Who does farm this land?
A. Mr. Litzell works it.
Q. Does he live on it?
A. Yes, sir.
Q. Did Mr. Andrews ever live on it?
A. Yes, sir.
Q. Was that land in this flooded area?
A. A portion of it.
Q. Was it seriously impaired in value?
A. Yes, sir.
Q. To what extent, do you know?
A. Oh, 35 to 40 per cent.
Q. Its assessed valuation for 1914 appears to have been $2,585 and in 1916, the year of the flood, $2,139; is that one of the pieces that you cut down to $2.50 an acre ?
A. I think that was a portion of it.

Q. Just a portion of it cut down?
A. Yes, sir.
Q. And in 1917 it appears to have been $3,116, nearly $600 above 1914. Do you how that came about?
A. No, sir.
Q. The east half of Section 20, Township 129, Range 47, 318 acres, in the name of B. B. Martin; do you call that land to mind?
A. Yes, sir.
Q. Was that in this flooded area?
A. Yes, sir.
Q. Where does Mr. Martin live?
A. On the farm.
293 Q. Was this land flooded in 1915 and 1916?
A. Partly.
Q. Was its value impaired?
A. Yes, sir.
Q. And the farm badly damaged?
A. Yes, sir.
Q. By the floods?
A. Yes, sir.
Q. What was the land worth in 1914?
A. Oh, $65 or $70.
Q. What was it worth in 1916 at the time of the flood?
A. About half as much.
Q. Is that one of the farms that you cut down to $2.50 an acre?
A. I couldn't say, I don't remember.
Q. It ought to have been cut down if it wasn't?
A. Yes, sir, part of it.
Q. As a matter of fact, the assessed valuation of that farm for 1914 was $2,726 and in 1916, the year of the flood, it was $3,916, over one thousand dollars more. You don't dispute those figures?
A. No, sir.
Q. Do you know how that came about?
A. No, sir.
Q. There is all of Section 15——
A. There must have been some mistake on the assessment of that land.
Q. You think there must have been some mistake on the assessment of the Martin land. I find that the assessed valuation of 1914 is $2,726, 1915, $3,704, 1916, $3,916 and 1917 is $3,521; can you explain those figures?
A. No, sir.
Q. Now, there is all of Section 15, Township 129, Range 47, a portion of that Section 15 is in the flooded area in Dakota. Do you call that to mind?
A. Yes, sir.
Q. Some 68.80 acres?
A. Yes, sir.
294 Q. Does the Great Northern Railroad have its headquarters in North Dakota at all? You don't consider it a resident of North Dakota?

A. No, sir.
Q. Now, was its land flooded in 1915 and 1916?
A. Yes, sir.
Q. Is that land cultivated?
A. No, sir.
Q. Ever been any buildings on it?
A. No, sir.
Q. What is it used for?
A. Hay land, when it can be used.
Q. Was it used this year for hay land?
A. I think they cut some of it.
Q. Do you think these floods seriously and permanently impaired the value of that land?
A. No, sir, not a great deal.
Q. Why?
A. They had always floods.
Q. Couldn't be hurt very much?
A. No, sir.
Q. And the assessed valuation of that land in 1914 appears to have been $370 and in 1917, $500; do you think the floods enchanced the value of it?
A. No, sir.
Q. Did you have anything to do with raising that?
A. No, sir.
Q. The east half of the northwest quarter and the west half of the northeast quarter and Lots 1, 2, 3, and 4 in Section 9, Township 129, Range 47, 214 acres, belonging to Andrew J. Ryddell; was that land flooded in 1915 and 1916?
A. Yes, sir.
Q. And its value substantially impaired?
A. The greater portion of it.
295 Q. To what percentage?
A. Well, on the quarter where the buildings are I should judge 50 per cent.
Q. And on the other quarter?
A. Well, the other is a little lighter, lying along the other section, just used for hay land.
Q. The assessed valuation for 1914 appears to have been $1,393 and in 1917, $1,752; you don't dispute those figures?
A. No, sir.
Q. Do you know how that came?
A. No, sir.
Q. Do you call to mind the east half of the sout-west quarter and the west half of *of* the southeast quarter of Section 9, Township 129, Range 47, 160 acres, assessed in the name of N. H. Powell?
A. Yes, sir.
Q. Where does he live?
A. At White Rock.
Q. Has he even been a resident of the State of North Dakota?
A. Yes, sir.
Q. When?

A. A good many year- ago.
Q. He hasn't been a resident in recent years?
A. No, sir.
Q. Does this farm have buildings on it?
A. No, sir.
Q. Is it in a state of cultivation?
A. I think in 1915 he broke possibly 40 or 50 acres.
Q. Was that the first time any part of it was broken?
A. To my knowledge, yes, sir.
Q. What had it been used for prior to that time?
A. Hay land.
Q. Wild hay?
A. Yes, sir.
296 Q. Not a cultivated farm at all?
A. No, sir.
Q. Was it cultivated in 1915?
A. Just broken.
Q. Was this land flooded?
A. In 1915 and 1916?
Q. Yes.
A. Yes.
Q. Value impaired?
A. Yes, sir.
Q. To what extent?
A. 40 or 50 per cent.
Q. The assessed valuation for 1914 appears to have been $1,056 and in 1917, $1,160; do you dispute those figures?
A. No, sir.
Q. Do you know how that came about?
A. No, sir.
Q. There is the west half of the west half of Section 9 in the name of Carl Burgess, Earl Burgess; was that in this flooded area?
A. I think so, yes, sir.
Q. Was its value impaired?
A. Yes, sir.
Q. Where does he live?
A. Illinois, I think.
Q. He is not a resident of the State of North Dakota at all?
A. No, sir.
Q. To what extent do you think the value of this land was impaired by the floods?
A. 50 per cent.
Q. Was that one of the pieces that you cut down in 1910 to $2.50 an acre?
A. I couldn't say whether it was or not.
Q. If Mr. Burgess lived in Illinois it wasn't cut down?
A. I couldn't say.
297 Q. As a matter of fact, in 1914 the assessed valuation was $1,267 and in 1816 it was $1,037 and in 1917 it was $1,160; do you dispute those figures?
A. No, sir.

Q. The southeast of Section 8, Township 129, Range 47, being 153.95 acres, in the name of John J. Nagel; do you call that land to mind?

A. Yes, sir, I know where it is.

Q. Part of that flooded in 1915 and 1916?

A. Yes, sir.

Q. About half of it?

A. No, I didn't say half of it, possibly a half of it, I couldn't say.

Q. Where did Mr. Nagel live?

A. I don't know where he lives.

Q. He is not a resident of North Dakota?

A. I couldn't say.

Q. Well, not to your knowledge, he doesn't reside in North Dakota?

A. No, sir.

Q. Was he cut down in 1916?

A. I couldn't say.

Q. As a matter of fact, the assessed valuation in 1914 of that tract was $1,221 and in 1916, $1,750; you don't dispute those figures?

A. No, sir.

Q. Do you know how that came about?

A. No, sir.

Q. What percentage do you think the value of that land was impaired?

A. The part that was flooded I would say 50 per cent.

Q. About 25 per cent on the whole tract?

A. Possibly.

Q. The west half of the west half of Section 4, Township 129, range 47, 156 acres, in the name of W. J. Taylor, do you call that to mind?

A. Yes, sir.

Q. Was that flooded in 1915 and 1916?

A. Yes, sir.

298 Q. Where does Mr. Taylor live?

A. Fairmount, North Dakota.

Q. Did he ever live on this land?

A. Yes, sir.

Q. About up to what time?

A. I guess 7 or 8 years he moved to town and the son stayed on the farm.

Q. Anybody living there now?

A. Yes, sir.

Q. The son?

A. Not on this quarter, he lived right across the road.

Q. Are there any buildings on this quarter.

A. Yes, sir.

Q. Anybody living in those?

A. No, sir.

Q. How long since anybody has lived in there?

A. It is just a machine shed.

Q. Nobody ever lived in that?

A. No, sir.

Q. And the son lives just across the road, you say?
A. Yes, sir.
Q. Is that in the flood area, where the son lives?
A. A portion of it, yes, sir.
Q. Did he live through the floods?
A. Yes, sir.
Q. This west half of the west half of Section 4, 156 acres, was that substantially damaged by the flood?
A. Yes, sir.
Q. What was the diminution in value in your opinion?
A. About 50 per cent.
Q. And you cut the land down in 1916 on account of the flood?
A. I couldn't say.
Q. You think it ought to have been cut down?
A. Yes, sir.
299 Q. As a matter of fact, the assessed valuation for 1914 appears to have been $1,247 and in 1916, the year of the flood, $1,215; you don't dispute those figures?
A. No, sir.
Q. Do you know why he wasn't cut down any more than that?
A. No, sir.
Q. The northeast quarter and the northwest quarter of Section 21, that would be one-half of Section 21, Township 129, Range 47, you call that to mind, do you?
A. Westerman land.
Q. The north half of Section 21?
A. Is in Mr. Westerman's name.
Q. East of Blackmere?
A. Yes, sir.
Q. At one time, I believe, that was owned by Mr. W. F. Houston?
A. I know he owned one quarter at one time.
Q. I understand you to say that your land was cultivated, put in crops, in the season 1897?
A. A portion of the northwest quarter was, yes, sir.
Q. And in 1898?
A. Yes, sir, a portion of it.
Q. And in 1899, was it?
A. Now, I wouldn't say in 1897.
Q. You say it was flooded in the spring but all put in crops?
A. I wouldn't say it was in 1897.
Q. Was any part of it in crops?
A. I wouldn't say as to that, I think the strip that the tract cuts in two was in.
Q. And in 1898 was that land in crop?
A. I couldn't say as to that.
Q. And in 1899 was that land cropped?
A. I couldn't say positively.

Redirect examination.

By Mr. Bronson:

Mr. Bronson: The complainant objects to all of the evi-
300 dence that has been asked this witness on cross-examination by the defendant in this action with relation to the assessed values upon the lands concerning which questions were propounded and upon the valuations stated to the witness by the questions of reference to the reasons for such assessed valuation and all the questions in connection with the assessed valuation for the years covered excepting such assessed valuations as the witness himself made; and moves to strike out all of such testimony on the grounds and for the reasons that such evidence primarily is based on hearsay assumption in the questions propounded by counsel of an assessed valuation named and stated not within the knowledge of this witness upon the assessed valuation fixed and determined by the equalization boards of the State of North Dakota whose actions this witness has no knowledge of, and by his testimony has shown that he has no knowledge thereof; and further for the reason that the assessments as made, or the assessed valuation as stated, have no relation to the market value of the lands involved herein or their relative market values during the years when the lands were flooded or were not flooded, and upon the ground that the same does not in any manner tend to prove or disprove any of the claims on the part of the complainant herein or affect the damages alleged to have been sustained herein or in any way to prove or disprove the cause of action as alleged herein on behalf of the complainant, and the same is incompetent and based entirely on speculative premises, no foundation laid for the proposal of such questions, and upon the further ground that the questions, as propounded, assume a state of facts not shown by the record, and therefore are irrelevant and wholly inadmissible.

Q. Now, Mr. Kurtz, counsel has proposed to you in a series of questions covering different tracts of land during this day a series of assessed valuation for different years, covering the land involved somewhat in this action. I will ask you to state whether or not by your statement in the evidence that you did not dispute those values, first, whether or not you have any knowledge whatsoever concerning those assessed valuations except those you have made by your own assessment?

A. I have not.

Q. Second, whether or not by your testimony and by your responses to questions propounded by counsel, you intended to say or to state in the evidence that you have knowledge of or admitted the proposed assessed valuation as counsel stated them
301 to you?

A. Yes, sir.

Q. You admit those are the assessments as proposed by counsel today?

A. That I assessed those valuations?

Q. No, the ones that he propo-ed to you for the year 1914, for the

year 1915, the valuation appeared to be such and such; do you know anything about that?

A. No, sir, I couldn't say those were the valuations.

Q. You know absolutely nothing about that?

A. No, sir.

Q. You have no knowledge of what the town board of review did in their meetings from year to year reviewing the assessed valuations?

A. The town board, yes, sir.

Q. As they instructed you from time to time?

A. You mean the different years?

Q. As I understand it, from year to year you went out and made assessments?

A. Yes, sir.

Q. Of these lands?

A. Yes, sir.

Q. And when you finished your assessments you turned it back to the town board?

A. Yes, sir.

Q. They reviewed them?

A. Yes, sir.

Q. And that perhaps is done in May and June of each year?

A. Yes, sir.

Q. And then, after that, this assessment is reviewed by the—after it is reviewed by the town board it goes to the county?

A. Yes, sir.

Q. And they review it?

A. Yes, sir.

Q. And from the county it goes to the state board and its is reviewed by them some time in August?

A. Yes, sir.

302 Q. That is your general understanding of the matter?

A. Yes, sir.

Q. Outside of that general understanding have you any particular knowledge?

A. No, sir.

Q. So far as your knowledge is concerned, in regard to any of these particular valuations as stated by counsel, that is based purely upon your understanding, not upon any knowledge you have yourself?

A. No, sir.

Q. And in making your assessments from year to year on these lands, as you have stated heretofore, you have followed the same procedure from year to year in years past?

A. Yes, sir.

Q. And have assessed these lands, generally speaking, in your township, at a valuation of from $5 to $8.50 per acre.

A. Yes, sir.

Q. Previous to the year 1915?

A. Yes, sir.

Q. It was a custom that had theretofore been in vogue, you went

by that and in accordance with instructions given by the town board?

A. Yes, sir.

Q. And I presume in making your assessments from year to year up to 1915, you also assessed personal property?

A. Yes, sir.

Q. Improvements?

A. Yes, sir.

Q. Monies and credits?

A. Two years ago I think we began on monies and credits the first.

Q. Any time include crops standing in the grainaries?

A. No, sir.

Q. When the year 1916 came, likewise the year 1917, you first went out in the year 1916 and made assessments as you had theretofore, as you stated to counsel in the evidence?

A. Yes, sir.

303 Q. Then there was some 4,000 acres of land that had been subject to overflow here in the years 1915 and 1916 concerning which the auditor and the board had given definite instructions?

A. Yes, sir.

Q. Which you followed?

A. Yes, sir.

Q. And on these same 4,000 acres of land you made assessments different than theretofore had been made?

A. Yes, sir.

Q. That is, you reduced the assessment from somewhat like how much per acre?

A. From $5 and $6 to $2.50.

Q. From $5 and $6 per acre to $2.50 per acre?

A. Yes, sir.

Q. And you made such assessments on these lands that year?

A. Yes, sir.

Q. And return?

A. Yes, sir.

Q. What the county board may have done on that matter or what the state board may have done, you don't pretend to be able to testify?

A. I have no knowledge.

Q. You don't pretend to be able to testify to what extent the state board of equalization in the State of North Dakota in the year 1916 made a horizontal raise on farm land in the state?

A. No, sir.

Q. You don't pretend to be able to testify to what extent the state board of equalization within the last two weeks had made a horizontal raise on lands in North Dakota?

A. No, sir.

Q. You don't know anything about that?

A. No, sir.

Q. You don't pretend to testify to that?

A. No, sir.

304 Q. So you are unable, by reason of your lack of knowledge concerning the assessed valuation to say anything but what is within your own knowledge?

A. Yes sir.

Q. On the other hand what testimony you have given in response to questions given by counsel is based entirely upon absence of knowledge?

A. Yes sir.

Q. Do you have some knowledge of their instructing you in regard to assessing those lands?

A. Yes sir.

Q. And you do have some general knowledge as to what lands in that locality assessments were reduced upon?

A. Yes, sir.

Q. Counsel has asked you a series of questions concerning the valuation of these lands before the floods of 1915 and 1916 came and after the floods of 1915 and 1916 came, and he has asked you to state the market value. Now, I will ask you, as a farmer who has lived in this locality for years and has farmed there for years, presuming that you have some knowledge of farm values by reason of that residence, to state whether or not as a fact the presence of waters on lands for two consecutive years does impair the value of the lands?

A. It does.

Q. And whether or not it does impair the market value of the lands?

A. It does.

Q. And I will ask you to state whether or not as a fact portions of land that may be situated right in this yellow designated territory which were not covered with water in the year 1915 and 1916, whether or not those portions, although not covered by water, became impaired in value by reason of the fact that there is water all around there and on other farms?

A. It does.

Q. I will ask you to state whether or not from your observation and experience and residence, the factors in making the value of land are its accessibility to a market town and its location with reference to drainage conditions and the fertility and productivity of the soil?

A. It does.

Q. Now, for farming purposes you may state whether or not a tract of land that is covered during two separate seasons of the year, both in the year 1915 and 1916, has any market value whatever during those years, 1915 and 1916?

305 A. It isn't worth anything at that time, that is sure.

Q. We will state it in another way. Supposing for a purpose of illustration a quarter section of Mr. Pinkney's land, which we have heard described in the evidence here, was totally covered by water during the years 1915 and 1916, so as not to be capable of being cultivated or crops raised thereon, what was the market value of such land, the actual market value of such land during either the year 1915 or 1916?

A. A man couldn't sell it for anything.

Q. Did it or not have a market value?

A. It did not.

Q. Now, in the year 1917, when there was no water on this very same land from the summer on, you may state what is the market value of that land, with an understanding, if any such existed in that community, that in another season of weather conditions like 1915 and 1916 there may be a recurrence of flood?

A. A man couldn't sell it.

Q. Would there by any market value for it?

A. No, sir.

Q. And would that same situation apply to all these lands on the yellow designated territory?

A. Yes, sir.

Q. Now, is there any question that lands which have been flooded for two years, the years 1915 and 1916, are permanently impaired as far as market value is concerned when there exists a general understanding in that community that there may occur a recurrence of the flood when weather conditions will permit?

A. It couldn't be sold, that is sure; there would be no value to it.

Q. Since the time that these floods came on these lands in 1915 and 1916 has there been any market value to your knowledge of these lands in the district affected?

A. No, sir.

Q. Counsel asked you one question about Lundberg; what was the situation of our friend Lundberg there for two years?

A. He had about 3 or 4 acres where his buildings was and the rest was all surrounded by water. He had to get his provisions in by boat; whenever he left the farm he had to go by boat.

306 Q. And this year he has had a little into corn?

A. Yes, sir.

Q. And is that substantially the result of his crop products for three years past?

A. Yes, sir.

Q. I will ask you to state whether or not in view of the estimates you have given to counsel of 50 per cent diminution, generally speaking, of the value of those lands situated in this district affected, is that based upon a consideration that the same conditions may continue next year and the year following, and so forth, as they continued during this season?

A. When it is dry like this, that is what I would consider the value of them.

Q. If it should continue dry as it is this year?

A. Yes, sir.

Q. You don't mean to say that if it should get wet again as it did in 1915 or 1916 that 50 per cent diminution in value would apply?

A. No, sir.

Q. Are you able to state offhand, not offhand but generally, what buildings have become vacant since the floods of 1915 and 1916 that theretofore were occupied?

A. I think part of them, anyway.

Q. Well, state that in the record, as you recollect them, one after the other.

A. There is the Jack Bolton buildings on Section 22, Township 130; then come what is known as the Mischki buildings in Section 33 and then the Carruthers buildings in Section 9, Township 129; good buildings on Section 21, Westerman land, and Section 22, on the Quidding place and Section 33 on the Waddington farm. The Baker farm the same section. The Brieden buildings in 32; Swanson buildings in 34. That is all I recall now.

307 CHARLES R. PINKNEY recalled for further cross-examination in behalf of defendant, testified as follows:

Examined by Mr. Palmer:

Q. Mr. Pinkney, you stated in your testimony yesterday that you had contributed funds to defray the expenses of carrying on this suit on the part of the complainant. I ask you whether to your knowledge various other private land owners or parties owning lands upon these flooded lands have contributed towards that fund?

Mr. Bronson: Objected to as immaterial, not within the issues and further, it is privileged.

A. Yes, sir.

Mr. Palmer:

Q. Now, isn't it true that citizens of the State of Minnesota who own land *in* on the Minnesota side of this Bois de Sioux River have likewise contributed to that fund?

Mr. Bronson: That is objected to upon the same grounds and not within the issues, wholly immaterial.

A. Yes, sir.

Mr. Palmer:

Q. About how many of these citizens of Minnesota have contributed to the expense of the carrying on of this suit?

Mr. Bronson: Same objection.

A. Very few.

Mr. Palmer:

Q. About how many?
A. Two I recall only.
Q. Do they own lands on the Minnesota side of the Bois de Sioux?
A. I believe so.
Q. And they contributed to this fund for that reason?
A. They contributed because they are ruined same as the rest of us.

Q. Because their farms were injured?

A. Yes, sir.

Q. And upon the understanding that if recovery was had by the complainant in this case they would receive their share of the recovery to apply upon their damages?

A. I am not prepared to affirm that statement you make.

308 Q. Are you prepared to deny it?

A. No, sir, I am not prepared to deny it.

Q. Did you collect the money from them?

A. Yes, sir.

Q. What understanding did you have with them when you got it?

A. I didn't have any understanding with them. They realized the menacing condition that they were in, the ruined condition they were in, and they were glad to see somebody take steps to remedy the trouble.

Q. And they were willing to contribute towards the securing of this remedy?

A. Yes, sir.

Q. And isn't it true that a large number of land owners on this affected territory in North Dakota have contributed towards this fund?

A. Several have.

Q. About how many?

A. I don't think I could state.

Q. Give your best judgment?

A. I should say from 25 to 40.

Q. And did you collect that money from them?

A. I think I did most of it.

Q. Upon what agreement or understanding?

A. No agreement whatever.

Q. Were those parties led to believe that if a recovery of damages was had in this suit that they would receive part of it?

A. I held out no such inducement to them. They realized they were ruined, same as I was, and they sought this as the only means of relief.

Q. You haven't answered my question.

A. I have answered.

Q. Did those parties to your knowledge have any understanding that if recovery was had in this suit that they would receive compensation for the damages they had suffered or partially suffered?

Mr. Bronson: The question has already been answered.

A. I don't think I could answer it any better than I have.

309 Mr. Palmer:

Q. Can you answer it yes or no?

A. No, sir, that is not a question that permits such an answer.

Q. Did they have any such understanding as that to your knowledge?

A. No, sir.

Q. Mr. Pinkney, I find in the bill of complaint in this case, after a statement of the period from 1915, spring of 1915, up to the time of the filing of the bill of complaint, which would be, I think, in the spring of 1917, this statement: "That during said period, all that portion of the land in the State of North Dakota, as indicated in yellow on the map, Exhibit A, hereto attached and hereby made a part hereof"—the same as is colored yellow upon the map, Complainant's Exhibit 1—"were held and owned and, at the commencement hereof are held and owned by citizens of North Dakota." Did you have anything to do with placing that allegation in that bill of complaint?

A. I did not.

Q. The truth is that more than one-half of those lands are held and owned by non-residents of the State of North Dakota, isn't that true?

A. I haven't figured it out and made a division. I would say that is approximately correct.

Q. I find this statement made in the bill of complaint: "That at the date of the commission of the trespass herein complained of,"—which would be 1915 and 1916—"there were embraced within said area approximately eighty farms, all whereof improved and in a high state of cultivation." Did you have anything to do with placing that allegation in this bill of complaint?

A. I did not.

Q. I find this further allegation: "That there were erected and in use thereon, various farm structures and improvements exceeding in value Two hundred and fifty thousand dollars and that said lands, exclusive of such improvements, exceeded in value one million dollars." Did you have anything to do with placing that allegation in that bill of complaint?

A. I did not.

Q. I find this allegation: "That there had also been constructed on said lands by public authority various public improve-
310 ments, including highways, bridges, culverts, public buildings, etc., the value whereof exceeded thirty-five thousand dollars." Did you have anything to do with placing that allegation in that bill of complaint?

A. I did not.

Q. I find this allegation: "That so long as said conditions of trespass are continued, the entire area will be rendered useless and worthless for agricultural or any other purpose whatsoever." Did you have anything to do with placing that allegation in that complaint?

A. I did not.

(At this time recess is taken until September 13, 1917, at 10 o'clock A. M.)

311 September 13, 1917, 10 o'clock a. m.

THEODORE BRACKIN sworn in behalf of complainant, testified as follows:

Examined by Mr. Bronson:

Q. What is your name?
A. Theodore Brackin.
Q. What is your place of residence and age, Mr. Brackin?
A. I am 48 years of age; northeast quarter of Section 34, Township 130, Range 47, Wilkin County, Minnesota.
Q. Is your land shown on this Exhibit 1, Mr. Brackin?
A. Yes, sir.
Q. Your land lies how far east of Fairmount and about how far south?
A. It is 2½ miles east of the village of Fairmount and a mile south.
Q. By the road?
A. Yes, sir.
Q. How much frontage has your land on the Bois de Sioux river, approximately?
A. The land in Section 27 is a mile—I have land also in Section 27 in the same township and range, none fronting on the river in 34.
Q. You own some land in Section 27?
A. Yes, sir.
Q. How is that described?
A. Northwest quarter of the northeast quarter and Lots 1, 2, 3 and 4, Township 130, Range 47.
Q. And that fronts on the river about how much do you say?
A. One mile.
Q. How long have you owned this land?
A. I think—I bought it in 1903, although I farmed it, I think, since 1898. I made an attempt to homestead it in 1898, I bought it later, I think about 1903 from the railroad company.
Q. When did you first come to this territory?
A. I bought the land in Section 34 in 1897, 25th day of May.
Q. Did you come up to this territory near Fairmount in this Red River valley in the spring of 1897?

312 A. Yes, sir.
Q. And have lived there——
A. That is, I farmed a farm west of White Rock.

Mr. Pinkney:

Q. We didn't ask you about that, we asked you if you came there?
A. Yes, sir.

Mr. Bronson:

Q. Have you lived there ever since?
A. Yes, sir.

Q. What has been your business ever since?
A. Farming.
Q. Now, when did you move on this property?
A. In the fall of 1897.
Q. Where were you in the spring of 1897?
A. I was on a farm 8 miles west of White Rock.
Q. From the fall of 1897 continuously up until the present time you have been in this district and have operated a farm there?
A. Yes, sir.
Q. During the years you have lived there, have you had occasion to observe the farm lands between where the Rabbitt River flows into the Bois de Sioux and the state line between North Dakota and South Dakota?
A. I have.
Q. And when you came there in the fall of 1897 to what extent was this territory developed, farmed, cultivated, etc., for farming operations?
A. Why, it was practically all; that is, there might have been some small pieces broken later.
Q. Your farm is in Minnesota?
A. Yes, sir.
Q. And you call some of this territory along the Bois De Sioux river on the east side a part of this valley the same as some of this territory on the west side?
A. Yes, sir; that is, you mean the yellow?
Q. The yellow streak.
A. Yes, sir.
Q. Shown on the map, Exhibit 1.
A. Yes, sir.
313 Q. To what extent have your lands been cultivated for farming operations during those years, whether broken up or whether in hay land, the general character of that?
A. It has all been broken up excepting about 40 acres of the land in Section 27, right along the river, and I broke up a part of it in 1914, the south end. I broke that and sowed it to flax and got a good crop.
Q. You may state generally what the conditions of overflow have been as you have observed them around your farm and in the territory to the west of it from the time you came there up until the year 1915.
A. In the spring at the time of melting snow, the river would spread out on some of the low lands; but it would always recede in time to give us a chance to get in our crops.
Q. And about when, would that occur every season?
A. Not every season, most apt to be after winters we had deep snows.
Q. There have been seasons there when there was no overflow?
A. Yes, sir.
Q. And up until 1915 what are your observations actually made of the extent of the overflow in the spring?
A. How long would it stay?

Q. How long would it stay and how far would it go?

A. I don't think it would exceed ten days, ten days to two weeks on the outside.

Q. That would usually occur in what month?

A. In April.

Q. And would last not to exceed eight or ten days?

A. No, sir. The land in Section 27 lies along the river and that land I always seeded before I seeded the land in Section 34; it seemed to be a little bit freer of pockets and it dried pretty quick.

Q. That is, your experience in farming these lands that you have mentioned has been that the land in Section 27 could be seeded earlier by you?

A. Yes, sir.

Q. By reason of being a little more free from pockets?

A. Yes, sir.

314 Q. During the years that you have lived there up to 1915, what sort of crops have you observed to be raised, not only on your farm but also in the country to the west of you and to the south of you?

A. It was sowed in grain crops.

Q. That means what?

A. Wheat, oats, barley, corn and flax.

Q. That is, what lands?

A. Well, Mr. Pinkney and Mr. Hertlebrink.

Q. And other farms along in that district?

A. Yes, sir.

Q. To what extent, as you observed it, was this territory in this yellow shaded portion farmed actually up to the year 1915?

A. It was practically all; I wouldn't say every bit was used for grain but the larger portion of it.

Q. You had occasion to go over this territory from time to time?

A. I have been south a few times, not so very often, south of Fairmount down to Blackmere.

Q. And you have been to Fairmount?

A. Yes, sir.

Q. You may state whether or not Fairmount is your trading town?

A. Yes, sir.

Q. By reason of being your trading town you have gone there from time to time?

A. Yes, sir.

Q. How often a week?

A. Averaging, I think, twice a week, sometimes more.

Q. With reference to the banks of the Bois de Sioux river at your farm in Section 27, you may state generally the nature of the Bois de Sioux river there with reference to the banks and the bed?

A. They are not very high banks. There are slight banks from the Fairmount bridge until you get to the south line of Section 27 and at the south line there are very shallow banks.

Q. Have you ever been up to where the Rabbit river flows into the Bois de Sioux?

A. Yes, sir.

315 Q. And relatively how are the bed and banks of the Bois de Sioux river north of the Rabbit river?

A. There are good banks there.

Q. Better banks, that is, higher?

A. Yes, sir.

Q. What conditions have you observed sometimes in the spring to exist with reference to snow and ice in the Bois de Sioux river right north of the Rabbit river?

A. I have seen the banks full of snow and in spring when the water would go out that would sometimes obstruct the stream until the snow was melted enough to let it through.

Q. And would serve sometimes to hold water until the obstruction was removed?

A. Yes, sir.

Q. In all other times in all these seasons of the year when you did have high water by flooding in the spring, as you have mentioned, which was would the current of the Bois de Sioux river be?

A. North.

Q. And from what direction would the waters generally come?

A. From the south.

Q. During the years that you have farmed there, as you have observed it, from the fall of 1897 up to 1915, have you observed any year during this time when cereal crops were not planted, sowed, harvested and threshed on lands in this territory marked or shaded yellow on this map?

A. Up until 1915 there hasn't been any season that I couldn't put in my land in Section 27 or 34, but in 1908 there was a bridge north of Fairmount that was obstructed, the bridge wasn't high enough, and it wasn't the full width of the river, I think 30 feet narrower than the banks of the river, and that got choked up with moss, floating grass and stuff, and Mr. Pinkney and I and some of us went there and we pried a plank off, tried to jam a piece of timber and it was like jamming into a haystack. We removed that and the water ran free and drained out land off in good season so that we could plow it that fall.

Q. That is, with the exception of the year 1908 in July when you had the flooded condition existing for a time, did you not?

A. Yes, sir.

316 Q. Due to this obstruction?

A. Yes, sir.

Q. And were some of your lands overflowed that spring?

A. A part of the land in Section 27, I harvested part of that land that year.

Q. And when this obstruction was removed, how long before the waters went off, just generally speaking?

A. I couldn't give just the exact time, but within a few days, anyway.

Q. Receded from your lands?

A. Yes, sir.

Q. And did you have some crops in on your lands in Section 27?

A. It was all in only a little piece I had for hay.

Q. You lost some crops that year by reason of this?
A. Yes, sir.
Q. With that exception has there been any year when you have not fully cultivated, tilled and farmed your lands?
A. No, sir.
Q. Up to 1915, I mean?
A. You mean from the overflow of the river?
Q. From the overflow of the river, yes, sir?
A. Not any.
Q. And even this year of 1908, did you observe whether or not there were some lands in this yellow shaded portion on Exhibit 1 whereon cereal crops were sown, grown, harvested and threshed in 1908; for instance, Mr. Smith's place to the north?
A. I don't hardly think that affected his lands at all that year; in fact, I know it did not. It didn't affect any lands north of the bridge where the obstruction was.
Q. Where was the bridge?
A. 2 miles north of Fairmount.
Q. This bridge they call now the high bridge?
A. Yes, sir.
Q. And was the bridge Mr. Pinkney referred to in his testimony?
A. Yes, sir.
317 Q. Now, this year on this Section 27, this year 1908, you harvested how much of your crop, as you recollect?
A. There was about half that we had in crop on the northwest quarter of the northeast quarter of Section 27, I harvested about half of that, and then I had some wheat, about 10 acres, on Lots 1 and 2 and I harvested about half of that, so it would be about 5 acres in Lots 1 and 2.
Q. That had been partially overflowed?
A. There wasn't any water on it but the land was soaked there so the bull wheel would slide.
Q. The bull wheel of the binder?
A. Yes, sir.
Q. Now, Mr. Brackin, in the spring of the year 1915, when did the flood waters start to come on lands in this territory involved as you recollect it?
A. 1915?
Q. Yes, sir.
A. I think it was in June some time, perhaps might have been the latter part of May, and gradually kept rising until it reached the higher stage.
Q. Did you have flood waters there in the spring of 1915?
A. No, sir; I put my land in clear up to the channel, that is, in Section 27, early in the spring.
Q. And then the waters came in after you- crop was planted?
A. Yes, sir, planted and up.
Q. And after the waters came in they kept gradually rising until they reached the height, you say?
A. Yes, sir.
Q. Did you have some water there in the fall?

A. 1915, on the lower land we did.
Q. How high was the flood was you observed it in the year 1915?
A. It must have been—you mean about the width?
Q. About the width.
A. It must have been a mile and three-quarters perhaps wide.
Q. That is, the stream——
318 A. That is, I wouldn't say that at all points it was the same but, say, on this Fairmount road, east of Fairmount, I should think it was a mile and three-quarters wide perhaps.
Q. In 1915?
A. I think so, yes, sir.
Q. There is a highway which you travel from your farm to Fairmount?
A. Yes, sir.
Q. And that is I presume, between Sections 23 and 26, going east and west?
A. On the north line of Section 27, that is the highway.
Q. Was that highway overflowed in 1915?
A. Yes, sir.
Q. Washed out some, or not?
A. Yes, sir.
Q. And what crops did you have in on your lands that season, just generally speaking?
A. Wheat, oats and barley.
Q. And what harvesting did you observe to be done that year, or crops to be threshed that year, if any?
A. The crops that were threshed were good.
Q. On the land not flooded, you mean?
A. Yes, sir.
Q. To what extent were crops threshed or harvested on lands that were flooded, as you observed them?
A. The land that was flooded from the water?
Q. Yes.
A. There wasn't any of that land harvested.
Q. And what observation did you make as to what condition the crops were in on this yellow shaded territory, as far as you made observations, if you did make any?
A. Yes, sir.
Q. During the year 1915, when the waters came in.
A. You mean, was the crops in good shape?
A. Yes, sir, and in what shape were they?
A. They were headed out and a good stand of grain.
319 Q. And these crops so flooded where the water went over the lands were not harvested or threshed that season?
A. No, sir.
Q. About how deep was the water on this land down at the river?
A. I was down on the river after the water had reached there clear to the highest point. Some of us farmers wanted to find out what was the cause, if there was any obstruction and we went down and went around in a boat and I remember sticking a pole we had in the boat down, I guess it was about the channel, and we thought it was

about seven feet deep, so we decided we better be careful and not upset the boat.

Q. How deep was the water on the land at any one place?

A. Well, that would average perhaps from a foot and a half, two feet maybe up to nothing. There might have been some places three feet on the lowest land.

Q. Any plowing done that fall on these lands that were overflooded?

A. Not unless it would be right on the outer edge of where the flooded parts were. I know in mine I couldn't plow any of it only just strips along the edge.

Q. And that was on account of that condition?

A. Yes, sir.

Q. And that continued somewhat through the winter?

A. Yes, sir, the ground froze that way so it was soft, almost impossible to drive over it.

Q. In the spring of 1916, what shape was the land?

A. It was very wet.

Q. And cropped or not?

A. No, sir.

Q. And did you have floods in 1916?

A. Yes, sir.

Q. About when did they come in?

A. In the spring from the melting snow in our locality it spread out pretty well and then it receded for a while and later it raised and stayed all summer.

Q. What time did these waters come in, the flood waters come in in 1916?

A. From the south?

320 Q. From the south, yes, sir.

A. It might have been perhaps the last of April, I can't give the exact date; maybe a little earlier or later.

Q. You recollect first the winter snows melting and the spring rains passed off?

A. That passed off and the water had receded a great deal and then later it raised.

Q. After the waters from the south came?

A. Yes, sir.

Q. And that continued through the summer, or not?

A. Well, up until anyway—it kept rising until I should judge the 1st of July or maybe a little bit later.

Q. Flood reached its highest point perhaps some time in July?

A. Yes, sir.

Q. Can you tell the extent of the flood that year; was it greater or less than the year before?

A. It was greater.

Q. Can you state whether or not it was greater than it had been at any time since you lived on those premises, and how you know it to be greater?

A. Well, take the northeast corner of my quarter that I live on, there was a piece of land that I had never know- to be flooded and

the neighbors around there told me they never saw it covered, that was covered.

Q. In the year 1916, covered with water?
A. Yes, sir.
Q. Was it covered in 1915?
A. The little corner was not covered.
Q. But in 1916 it was covered?
A. Yes, sir, about three inches of water on it.
Q. You had no crop on that land that year that was flooded?
A. No, sir.
Q. Have any crops on your other lands not flooded?
A. I did.
Q. That you sowed?
A. Yes, sir.
321 Q. Harvested and threshed?
A. Yes, sir.
Q. Crops of wheat?
A. Had some wheat and oats.

Mr. Palmer:

Q. That was in 1916?
A. Yes, sir.

Mr. Bronson:

Q. And some oats and barley?
A. Some oats *and* but didn't have barley.
Q. Some hay?
A. No, I didn't have any hay.
Q. Was your wheat rusted that year?
A. Yes, sir.
Q. When this water in 1916 was at flood stage, which way was the current in the river?
A. North.
Q. And when at flood stage, what were the general conditions, as you observed them, as you looked out towards the river there to the north and south?
A. The water was running north.
Q. What could you see to the north, water north and water south?
A. Water north and water south.
Q. And water to the west?
A. Yes, sir.
Q. About how wide was the stream in 1916 between your places and Fairmount, the expanse of water?
A. On the Minnesota side it extended almost within a few rods, perhaps 28 rods, I should judge, from the northeast corner of Section 27, Township 130, Range 47.
Q. And about how wide was the expanse of water as you observed it there when you go over to Fairmount, formerly on the highway?
A. Well, it might have been a mile and a half, mile and a quarter or a mile and a half at that point.

Q. Never measured it?
A. No, sir.
Q. How did you get over to Fairmount during the summer of 1916?
A. I went in a boat, either in a boat or walked the Soo track.
322 Q. Were the highways flooded?
A. Yes, sir.
Q. Leading to Fairmount east and west?
A. Yes, sir.
Q. Over the grade?
A. Yes, sir.
Q. How much over the grade?
A. How deep?
Q. Yes, how deep.
A. Well, now, I will tell you one instance. I remember some of the neighbors said the grade was not safe and I didn't want to go to one of the other towns, so I unhitched the horse, got on its back and rode in until the water came up to its collar and I didn't care to go in deeper, so I turned and went back.
Q. This was in 1916?
A. Yes, sir.
Q. And you rode on horseback?
A. Yes, sir.
Q. And took this road on the north line of Section 27?
A. Yes, sir.
Q. On the highway?
A. Yes, sir.
Q. And rode westerly on the highway towards Fairmount?
A. Yes, sir.
Q. And you kept on riding until——
A. I rode until I got very near the bridge.
Q. Until you got nearly to the bridge crossing the Bois de Sioux river?
A. Yes, sir.
Q. Then the water had come up about to the collar of the horse that you were riding?
A. Yes, sir.
Q. So you didn't go any further?
A. I didn't care to go any further.
Q. Was the road there graded up, this road you were traversing?
A. Yes, sir.
323 Q. Above the general surface of the ground?
A. It was.
Q. About how much, generally speaking?
A. There might have been a grade, perhaps two feet high but it had washed out some.
Q. How much washed out you don't know?
A. I don't know just how much it had washed out, might have been a foot.
Q. Can you give a statement about how deep the water was on the land at about this point where you had proceeded with this horse? Give it in feet.

A. You mean on the road or land?
Q. On the land itself.
A. Well, south of the road fairly high land there, I should judge it might have been 14 inches or 18 inches along there.
Q. The land a little higher there?
A. Yes, sir.

Mr. Palmer:

Q. Did you measure it?
A. No, sir.

Mr. Bronson:

Q. You spoke of the land in Section 27, a portion if it being a little higher?
A. Than it is on the road.
Q. Than it was on the road. Were there other portions that were lower than the highway?
A. Why, right at this one point, yes, sir.
Q. Yes, but as you proceeded on the highway westerly towards Fairmount on the north line of Section 27, the highway, if I understand you correctly, has a general raise about the level of the surrounding land of about how much?
A. You mean, the graded road?
Q. Yes, the graded road.
A. Yes, sir. Well, I should think the graded road is about two feet of a grade on an average.
Q. Above the level of the land?
A. Yes, sir, above the level of the land.
Q. This high point you mentioned in Section 27 is a little bit above the grade?
A. Yes, sir; there is a little low corner, on this corner of this forty, that land I spoke about, the land being used for farming purposes is a little bit higher.

Mr. Pinkney:

Q. Wasn't the water outside of the grade deeper than would come up to the collar on a horse?
A. Yes, sir.
Q. Then if a horse's collar is more than 14 inches high the water outside there must have been more than 14 inches deep?
A. Either I don't understand you or you don't understand me. The water on this forty was not the depth it was on the road.
Q. I am talking about the general lay of the land?
A. No, it was not.

Mr. Bronson:

Q. Generally speaking as to the general conditions of the water in the summer of 1916, I understand you to testify that the stream in width where you went to Fairmount was a mile and a half or mile and three-quarters in width?

A. Yes, sir.
Q. You didn't measure the depth of the stream there?
A. No, sir.
Q. But as far as you did make any observations as to the depth of it, you know when you went with a horse on this highway that it came up to its collar when you came near the bridge?
A. Yes, sir.
Q. And you say, generally speaking, that the highway above the level of the surrounding lands on either side of it was about a foot or two feet, depending upon i-s washed-out condition?
A. Excepting that one point.
Q. In Section 27?
A. Yes, sir.
Q. Did you see any crops raised in 1916, harvested or threshed on this territory within the yellow shaded portion?
A. I did not.
Q. And was there any?
A. No, sir.
325 Q. Why wasn't there any?
A. Well, it was on account of the flood, couldn't put the crops in.
Q. Couldn't have harvested them if they were in in 1916?
A. No, sir.
Q. In the spring of 1917 to what extent did you observe any crops being put in and afterwards being harvested and threshed in this territory within the yellow shaded portion on the map, Exhibit 1?
A. There is a little put in but a great deal of it was put in so late it didn't amount to anything.
Q. What shape was the ground in 1917?
A. Very wet. For instance, my own ground; I engaged—I thought I might put in one west forty of Section 27, northwest quarter of the northeast quarter of Section 27—I engaged a gas tractor to come and plow for me and that was the 15th of June, and then I had a little land in Section 34 that I was plowing myself with horses. I considered that a little bit dryer than it was in Section 27 and I went back and told the fellow he couldn't plow, no use in coming, and so I had to wait a few days, and then it got to be the 29th of June and it was no use, some of it didn't come up on account of the drouth.
Q. Was it too wet to plow before this time with a gasoline tractor or any other way?
A. Yes, sir.
Q. What made it wet?
A. Well, the overflow of the river.
Q. In 1916?
A. 1917 and being froze in such a wet condition, that it remained wet all winter from 1916.
Q. This wet condition that you speak of existing in the spring of 1917 was not due by reason of the rainfall of 1917?
A. No, sir, it was not.
Q. The season of 1917, has it been a wet season or a dry season?
A. It has been dry.
Q. Would you call it excessively dry or moderately dry?

A. Exceptionally dry.

326 Q. During the years you have lived there, have you seen any season as dry climatically as the season of 1917?

A. I have not.

Mr. Pinkney:

Q. You mean to limit that to the spring and summer?

A. Well, that is the way I understood him.

Mr. Bronson:

Q. Yes, spring and summer of 1917.

A. Yes, sir.

Q. Did you visit White Rock during the year 1916?

A. I was there once.

Q. About what time of the year?

A. I think about the 20th of July.

Q. And what were conditions, as you observed them, at White Rock at that time?

A. I saw some water on Main street, right at the First National Bank, wasn't very much.

Q. And what could you see as you drove on the Minnesota side to White Rock?

A. To White Rock?

Q. Yes.

A. I noticed the land along the shaded area was all flooded.

Q. Covered with water?

A. Yes, sir.

Q. As you got to White Rock, did you notice water around White Rock?

A. Yes, sir.

Q. Around the whole town?

A. Yes, sir.

Q. On every side?

A. I could tell from the Minnesota side before I drove down into town that there was water there. Of course, after I got into the village I didn't drive around to see each block.

Q. As you drove into White Rock, could you see water to the north?

A. Yes, sir.

Q. And water to the south?

A. Yes, sir.

327 Q. And water to the west?

A. Yes, sir.

Q. And in the village of White Rock itself you saw it on Main street?

A. I did.

Q. You may state whether or not, Mr. Brackin, you have ever visited any portion of this territory shown on the map, Exhibit 1, shaded with the light blue?

A. I have.

Q. When?

A. In about 1900.

Q. And about what time of the year?

A. In the spring; I have been at Norcross at different time- prior to that.

Q. Prior to 1900?

A. Yes, sir.

Q. About how many times?

A. I should think about three or four different times.

Q. What seasons of the year?

A. I was there in the spring time and I was there in, well, in harvest time and in—late enough in the fall so it was considered threshing time.

Q. Did you have a relative living there?

A. I had a brother.

Q. Living whereabouts?

A. I think it was about three miles northeast of Norcross. I might be mistaken and I might be right about the directions; being a stranger you are apt to get turned around.

Q. During those years you were living on this land over near Fairmount?

A. I was.

Q. And when you went over to this brother's place near Norcross, in Grant county, Minnesota, you proceeded to go there by what method of conveyance?

A. I moved a binder, for one thing, to harvest a crop there.

Q. At one time, and other times how did you get there?

A. I drove over with a wagon and took care of the grain that I harvested the crop and agreed to put it in the elevator for him this particular year.

328 Q. That was in 1900?

A. I think that was the date.

Q. In going from your land near Fairmount to your brother's farm near Norcross, state generally through what territory you proceeded?

A. Why, I went south of Tenney and I struck in here, Tintah, somewhere.

Q. What county is that in?

A. Traverse county. I remember striking Tintah and then I followed the railroad for a distance, several miles, then I cut across to about where my brother lives as near as I could.

Q. Have you been to Norcross?

A. Yes, sir.

Q. At different times?

A. Quite a good many times.

Q. Have you been west of Norcross?

A. I have.

Q. Have you been along this Mustinka river?

A. I have been fishing there some.

Q. West of Norcross?

A. Well, it might have been a litle further north than Norcross. It might have been down in here some place (indicating.)

Q. In what county?

A. In Traverse county, I think.

Q. Now, Mr. Brackin, those visits over to your brother near Norcross cover what period of years? 1900 seems to be the last; now, how many years before that?

A. I think—I can't give you the number of years, three or four years before that. I usually went over there once a year, sometimes twice.

Q. Do I understand then that the periods of your visits to your brother's near Norcross would extend from the years 1897 to 1900, generally speaking?

A. Yes, sir.

Q. And do you remember particularly of going over to your brother's near Norcross in the year 1900 with a binder to harvest his crop?

A. Yes, sir, I do.

329 Q. And that traversing was done by taking a binder from your place?

A. Yes, sir.

Q. Going with a team overland to your brother's near Norcross?

A. Yes, sir.

Q. Across county?

A. Yes, sir.

Q. Do you remember whether or not in the year 1900 you went through Tintah with that binder?

A. I did.

Q. Then went south?

A. I followed the Great Northern railroad for quite a few miles, I couldn't tell just how far.

Mr. Palmer:

Q. Which side?

A. I think it was on both sides, if I remember right.

Mr. Bronson:

Q. Now, at that time, what shape were the highways and grades?

A. Very poor shape; most of the way there wasn't any grade at all, that is, in this part (indicates).

Mr. Pinkney:

Q. It wasn't graded?

A. No, sir.

Mr. Bronson:

Q. That is, when you went south of Tintah towards Norcross there were few grades?

A. Very few grades.

Q. What did you have to traverse, a road near the railroad or what we call a trail or what was it?

A. It was a kind—it wasn't a graded road, it was a kind of a trail; when one piece of road would get too muddy, go a little out to the side on the prairie.

Q. As you traversed this territory, Mr. Brackin, from Tintah southerly towards Norcross, you may state what observations you made as to the territory you saw there on the east side or the west side with reference to whether the land was being cultivated or tilled and whether it was wet or dry and general conditions.

A. I noticed a great deal of unsettled land west of the railroad.

330 Q. What county?

A. In Traverse county, Minnesota.

Q. State the character of it, whether high or low or wet or dry?

A. A great deal of low land, there, wet.

Q. Wet then?

A. Yes, sir, some of it, so that it was disagreeable for——

Q. And it was being used for wheat crops, oats, barley or hay?

A. No, there wasn't any crops handy to the track at all. I remember it was very disagreeable in transferring the binder back and forth.

Q. What made it disagreeable, rain or snow or what?

A. At that time there wasn't any, disagreeable mud only left and it was very wet in there.

Q. Muddy?

A. Yes, sir.

Q. At this time, have you any recollection of what conditions were at Fairmount on your land when you left there?

A. They were dry, everything in fine shape.

Q. Crops in?

A. Yes, sir.

Q. Cereal crops growing?

A. Yes, sir.

Q. Now, as you traversed this territory with your binder and went through the country did you notice whether this country to the west was in grain crops or not in grain crops?

A. Not in grain crops.

Q. Settled or not settled?

A. It was unsettled land, a great many miles there at that time didn't seem to be any buildings on it.

Q. You could notice that as you went through the country?

A. I could.

Q. And you proceeded to go to your brother's with the binder?

A. Yes, sir.

Q. Did you have any difficulty in getting through with your binder?

A. I got through, it didn't get stuck, or anything of that kind, but the roads were muddy and, of course, not so pleasant to

331 move as it would have been if it were dry.

Q. Have you ever been at Wheaton, Mr. Brackin?

A. Yes, sir.

Q. In 1916?

A. Yes, sir.

Q. In the month of July, 1916?

A. About the 20th of July I took my sister down to Wheaton to visit one of my sisters that lives handy to Lake Traverse.

Q. Was that near the time you were at White Rock?

A. The very same day.
Q. And Wheaton is in the State of Minnesota, Traverse county?
A. Yes, sir.
Q. How close is it, would you state, from the Mustinka state ditch or the Mustinka river?
A. Why, it might be three-quarters of a mile south; I wouldn't say for sure the exact distance, maybe a mile.
Q. While you were at Wheaton, did you see this Mustinka ditch or Mustinka river near Wheaton?
A. I did.
Q. And observe the state of water in it and the current in it?
A. Yes, sir.
Q. What did you see?
A. I noticed it was about level with the land at that time and the water was running very fast. That is a swift current, a great deal swifter current than it would be in the Bois de Sioux river.
Q. What direction was it going?
A. In the direction of Lake Traverse, west.

Mr. Palmer:

Q. The water was about the level of the banks?
A. About the level with the land, the surface of the land was what I meant to say.

332 Mr. Bronson:

Q. Where did you see this Mustinka river or ditch at that time?
A. Where did I see——
Q. About where did you see it?
A. It was right north of Wheaton, right handy to the railroad track.
Q. Near the bridge that goes across the Mustinka ditch there?
A. Yes, sir, I crossed the wagon bridge.
Q. And you say the water was about level in the ditch with the surrounding land?
A. Yes, sir.
Q. Describe this ditch as you saw it there at that time.
A. There is lots of dirt that had been excavated from the ditch and put on the east side of the ditch.
Q. That is, an embankment?
A. Yes, sir.
Q. Dirt that had been thrown out of the channel?
A. Yes, sir.
Q. And did you make any observations as to how wide the ditch was at that point?
A. Why, I did not; I can't give you the exact—I should judge perhaps it might be 60 feet, maybe 70; I don't know.
Q. You didn't make any measurements?
A. No, sir, might have been more or less.
Q. Did this excavation that you saw there existing in the shape of an embankment thrown up on each side of the channel extend as your eye observed it to the north as well as to the south?

A. Yes, sir, about the same, I should judge, on each side of the channel.

Q. In other words, this excavated territory, as your eye saw it, extended northward from the bridge as well as southward from the bridge?

A. Yes, sir.

Q. Now, when you came down to Wheaton, Minnesota, you had come from your farm near Fairmount?

A. Yes, sir.

Q. And you had seen the water there?

A. Yes, sir.

333 Q. And the current there?

A. Yes, sir.

Q. And the way it was flowing there towards the north?

A. Yes, sir.

Q. And then you came down to White Rock and saw the water conditions there?

A. Yes, sir.

Q. As you went into the city or town or White Rock you saw near the bridge a current in this water there, did you not?

A. I did.

Q. Northward or southward?

A. North.

Q. And then you came down to Wheaton and saw the water conditions existing in the Mustinka state ditch?

A. Yes, sir.

Q. You stated that the current in this state ditch at that time was swifter than up there at Fairmount; did I understand you right on that?

A. Yes, sir.

Q. You observed that by your eye?

A. I did; I remember making a remark that at that time anybody——

Mr. Palmer: We don't care anything about your remarks at the time.

Mr. Bronson:

Q. You saw actually, your eye observed there a swifter current than when you left home?

A. Swifter at Wheaton, you say.

Q. Yes.

A. Yes, sir.

Q. That was the current towards Lake Traverse?

A. Yes, sir.

Q. You know where Lake Traverse is?

A. Yes, sir.

Q. You have been down there?

A. Yes, sir.

Q. And you know the Mustinka river empties into Lake Traverse?

A. I do.

334 Q. Did you go down to Lake Traverse at that time?
A. No, sir, I did not.
Q. When you were at White Rock you could see the upper end of Lake Traverse, could you not?
A. Well, now——
Q. They call it lake Traverse?
A. I always thought they call this a kind of Mud lake here; Lake Traverse I considered down there handy to Wheaton (indicating).
Q. Down towards Lake Traverse you always considered to be what is marked on the map Lake Traverse, exhibit 1?
A. Yes, sir.
Q. Do you remember of being at Wheaton, Minnesota, at a time previous to this, several years perhaps previous to that, when there were no excavations in this channel at Wheaton, Minnesota?
A. Yes, sir.
Q. And in about what year was that, as you recollect you were there?
A. I think it was almost—I would go to Wheaton, I think, anyway once a year ever since I was located near Fairmount, sometimes more often.
Q. And about what time of the year?
A. Sometimes during June or in the fall months.
Q. Have you relatives living there?
A. I have.
Q. Do you remember the time then when this Mustinka river was in its natural condition?
A. I do.
Q. And before this ditch project had been put in past Wheaton, Minnesota?
A. Yes, sir.
Q. Now, when you observed the Mustinka river before the ditch was put in past Wheaton and at the time that you observed it when the ditch was in, what differences, if any, have you observed concerning the water in the ditch or the current in the ditch and the river?
A. Why, at the time that I have been there since the river has been deepened, at this particular time I crossed it, there
335 was more water in it than there was before. I have been across this river a great many different times and there didn't seem to be any water in it, that is, sometimes, probably dry.
Q. In the year 1917 you may state to what extent you observed these farms or some of them in this yellow shaded marked territory in the State of North Dakota to be grown up with foul weeds, if any, or cattails, if any, or what?
A. It is all grown up to cattails, probably; only some of the lands, perhaps, they made the attempt to put in crops where the water wasn't so deep out on the western edge of it.
Q. You have seen farm after farm grown up to cat-ails?
A. I have.
Q. And were these farms that theretofore, prior to the year 1915,

had been cultivated, tilled, farmed for raising crops of wheat, oats, barley and flax?

A. Yes, sir.

Q. You have been up to Tenney this summer, have you not, Mr. Brackin?

A. I have.

Q. In the year 1917?

A. Yes, sir.

Q. You have been along the Rabbit river, have you ever observed Rabbit river?

A. Do you mean in this particular season?

Q. No, any season.

A. Oh, yes.

Q. You have been up and down it occasionally?

A. I have crossed it at Campbell and crossed north of Childs on the wagon road leading to Breckenridge, I have crossed it there a good many times.

Q. That is, on the line running north and south, the section line running north and south at Childs, you crossed it at different times?

A. Yes, sir.

Q. And then crossed it on the road to Campbell from your place at times?

A. Yes, sir.

Q. When you were at Tenney, Minnesota, this summer, you may state whether or not you observed any ditch project there being carried on, or completed, or what was being done?

336 A. They was carrying on a ditch project that empties into the Rabbit river.

Q. Running in what direction?

A. North.

Q. North and south?

A. North and south, yes, sir.

Q. And in Wilkin county?

A. Yes, sir.

Q. And this ditch project starts about where?

A. I think it is a half a mile north and, I think, it is about a mile west. That is about the starting point and then from there it runs north——

Q. About a *a* half a mile——

A. I think it is half a mile north of Tenney and then I think it goes west for a mile and then it runs north to the Rabbit river, perhaps a little over to the west after it strikes a little depression in the ground as it gets nearer the river; I know there is a curve in the dirt that was excavated from the ditch.

Q. Towards the north?

A. Yes, sir.

Q. After you get further towards the north?

A. Yes, sir.

Q. What operations did you see being carried on this summer of 1917 at that point?

A. Why, there was a ditching machine there. It made a ditch,

I don't know the exact width or depth but I think it was about 18 feet wide at the top and perhaps 8 feet deep and 7 or 8 feet wide.

Q. Was this machine operating during the summer of 1917?

A. Yes, sir, I was there and seen it.

Q. Were you there more than once?

A. No, sir.

Q. Did you observe some excavations being made?

A. I did.

Q. Ditching machine in operation?

A. Yes, sir.

Q. And could you observe any of the excavations towards the north as to whether or not they were recently made or had been made the year before, anything of that kind?

337 A. Made in the summer of 1917.

Q. You could tell that from the excavations, the way they were thrown up?

A. Yes, sir; I seen them operating on it so I positively know.

Mr. Palmer:

Q. We understand that this ditch was into the Rabbit river?

A. Yes, sir.

Q. From the south in the year 1917?

A. Yes, sir.

Mr. Palmer: We object to this as wholly immaterial.

Mr. Bronson:

Q. Now, you have been over the Rabbit river, as you stated, at these various points. State generally the banks of the Rabbit river as you observed them.

A. The banks were high and it always had a good current in it. Current is swifter in the Rabbit river than it is in the Bois de Sioux.

Q. That is, when you have observed it, when there was a current in it, the Rabbit river has a swifter current than the Bois de Sioux river?

A. Yes, sir.

Q. When did you see the Rabbit river last?

A. Why, it was some time this summer, perhaps in June I crossed it.

Q. Was there or was there not some water in it then?

A. There was.

Q. With some current in it?

A. Yes, sir.

Q. Now, about how wide is the river channel of the Bois de Sioux river at your farm between the normal banks?

A. Do you mean at the north line of Section 27?

Q. At the north line of Section 27.

A. I think the bridge at this point is 118 feet between the east pier and the west pier, I think that is what the commissioners said it was, and I have no reason to doubt their word.

Q. I am asking you to state what the channel is of the stream itself at its normal stage?

A. The banks might be perhaps 5 or 6 feet wider than the bridge.

338 Q. That is, at the tops of the banks?

A. Yes, sir.

Q. Now, the channel in June 1917, the channel of the water itself would be about what width of the water?

A. Perhaps it was—it was out of the banks some in June—1917?

Q. June, 1917.

A. It might have been out of the banks perhaps in June 30 or 40 or 50 rods.

Q. Well, in July, 1917, about how wide was this?

A. In July it had receded some but not enough so I could get all of the hay land along the river in Lots 1 and 2.

Q. At the present time how wide is the — September, 1917, with- a week past, how wide is the water of the Bois de Sioux river at this northwest quarter of Section 27?

A. I don't believe the water is over two rods at the present time, maybe three rods. I- stopped running before this rain we had a week ago, I know that.

Cross-examination.

By Mr. Palmer:

Q. When you came to this vicinity in 1887 you say it was the spring of the year?

A. Yes, sir.

Q. Where did you reside and farm that season?

A. Eight miles west and one mile north of White Rock.

Q. In North Dakota or South Dakota?

A. North Dakota.

Q. It would be just——

A. On the line.

Q. Just on the line?

A. Yes, sir.

Q. And eight miles west would take you completely out of the Bois de Sioux valley?

A. Yes, sir.

Q. You bought a farm eight miles west of the valley?

A. No, sir, I rented one for that season.

339 Q. Why didn't you rent one in the valley?

Mr. Pinkey: That is objected to as immaterial.

A. I was a stranger at that time; I bought this land from——

Mr. Palmer:

Q. I didn't ask you about buying any land; I asked you why you didn't rent a farm in the Bois de Sioux valley that spring?

A. I was a stranger and I took just what I could find.

Q. What were the conditions as to overflow of the lands within the Bois de Sioux valley that spring?

A. Why, it was overflowed that spring.

Q. And was it overflowed that spring to substantially the same extent as in 1915 and 1916 you have described?

A. Just in the time of the melting snow but——

Q. Don't argue the question, just answer it.

Mr. Bronson: Let him answer it.

A. Do you want me to answer?

Mr. Palmer:

Q. I am not going to have you put an argument in the answer. You have stated just in the time of the melting snow.

A. Yes, sir; I haven't finished my answer. This land that I am living on now——

Q. I haven't asked you about the land you are living on now.

A. Oh, well——

Q. Let me ask the question again. In the spring of 1897 when you first saw these lands in the Bois de Sioux valley, were they overflowed to substantially the same extent as in 1915 and 1916?

A. I think they were about the same. Now, I don't mean to say that I could say anything about the lands any further north than Blackmere at that one particular spring that you speak of.

Q. That would be about 4 or 5 miles north of the line was all of the valley which you saw that spring?

A. Until after the water had receded.

Q. As I understand it, commencing here at the south state line of North Dakota, the valley of the Bois de Sioux is about three miles in width?

A. I think so.

340 Q. And that is practically all on the Dakota side?

A. Most of it.

Q. The main channel of the Bois de Sioux which forms the boundary line between North Dakota and Minnesota is very close to the eastern bank of the valley?

A. Yes, sir.

Q. About how high is the bank of the valley on the eastern or Minnesota side?

A. Why, you mean opposite to White Rock here?

Q. Well, it would be a mile north, Mr. Brackin; about how high in feet above the valley itself?

A. Perhaps it might be eight feet, maybe a little more, maybe eight or ten feet probably, I wouldn't say for sure. You mean the bank, the upper land?

Q. Yes.

A. I should judge eight or ten feet, it might be a little more or might not be. I guess maybe it might be twelve, I don't think it would be any more than that.

Q. Well, isn't it nearer 20 or 30 feet, Mr. Brackin?

A. I don't think so.

Q. What is it opposite White Rock? If you go up out of the valley on the top of the hill?

A. Well, right at that point I should judge perhaps might be 18 or 20 feet; a mile further north I don't think it would be over 10 or 12 feet at the outside.

Q. Then, after you go up out of the valley on the eastern or Minnesota side the land to the eastward is elevated about the same height above the valley; that is, it is a plateau there, it doesn't fall again to the level of the valley?

A. No, sir.

Q. And on the eastern or Minnesota side is the bank of the Valley itself about the same height continuing to the north?

A. Why, it varies until it—the bank gets lower the further north it goes; after you strike Wilkin county, then the land gets more level.

Q. With the river?

A. Yes, sir; that is, more level, I mean than it is in Traverse county on the east side.

Q. And the bank of the valley gradually drops until you get to the confluence of the Rabbit river with the Bois de Sioux,
341 when the banks of the valley become practically identical with the banks of the river itself?

A. Well, there is some elevation but—between the river and the lands east?

Q. After you get north from the confluence of the Rabbit.

A. I thought you meant from the county line.

Q. No, I mean from the confluence of the Rabbit river, here.

A. Ask the question again.

(Question is read by reporter, as follows: Q. And the bank of the valley gradually drops until you get to the confluence of the Rabbit river with the Bois de Sioux, when the banks of the valley become practically identical with the banks of the river itself?)

A. About that.

Q. So that all of the distance from the state line northerly to the confluence of the Rabbit there is a drop of from 10 and 12 feet to perhaps 2 or 3 or 4 feet from the bank of the valley to the stream or thread of the Bois de Sioux itself?

A. You mean, 2 or 3 feet of a drop?

Q. No, I mean—read the question. (Question is read.) That is, there is a river valley as well as the river itself all of the way from the state line northerly to the confluence of the Rabbit, there is some river bank?

A. Yes, sir.

Q. Easterly of the river?

A. Yes, sir, a little.

Q. Clear to the confluence of the Rabbit river?

A. I don't mean it goes clear up to that.

Q. Very nearly to the confluence of the Rabbit river?

A. It might run up until opposite Chiles, about 2½ miles south

of the Rabbit river; there might be a little difference in the land between Childs but not so much as south.

Q. And there is probably a little valley easterly from the Rabbit river on the Minnesota side clear up to the confluence of the Rabbit?

A. There may be a little narrow strip there.

342 Q. Now, Mr. Brackin, westerly from the river, where it crosses the state line, the southerly state line, you say the valley of the river extends some three miles or very nearly that?

Mr. Bronson: I will ask the witness to state what he understands by the term 'valley.' Some may mean the Red river valley and some mean the Bois de Sioux valley.

A. What I understand you to call the valley would be the space between the two hills.

Mr. Palmer: That is exactly what I am talking about, you have got it.

The Witness: And the land that is flooded, is that it?

Mr. Palmer:

Q. By valley, Mr. Bracken, I mean the space between the two hills. Now, how far is it over to the hills on the western side from where the river crosses the south line of the state?

A. I don't know for sure but I think it is nearly two miles.

Q. Isn't it——

A. It may be more.

Q. Isn't it nearer three miles?

A. Maybe it is.

Q. Now, how high are those hills on the western side?

A. I don't think the hills would exceed in height ten or twelve feet right at that point, you mean opposite the state line? I don't think it would be over ten or twelve feet.

Q. About the same on the Minnesota side?

A. Practically the same, I should judge.

Q. And from the hills westerly the land is a plateau, practically on the level with the hills?

A. Practically on a level, yes, sir.

Q. And does that westerly bank continued substantially as it is outlined by this western border of this yellow territory northerly clear to the confluence of the Rabbit river?

A. Carried right clear through?

Q. No, but do the banks continued to be same banks?

A. No, there is a little difference in the land outside of this shaded area than——

343 Q. What difference is there?

A. There may be a couple of feet, perhaps 3 or 4, I don't know.

Q. Then it is substantially the same as on the Minnesota side, it drops from this 10 or 12 feet at the state boundary it drops to substantially nothing as you get to the confluence of the Rabbit river?

A. Before you get as far north as Blackmere you wouldn't observe any hill there, at least I never have.

Q. You have some rise in the ground?
A. Well, it is a little higher than it is handy to the river?
Q. This shaded area is practically all on a level so far as can be observed with the eye?
A. It is very level, quite level.
Q. You haven't answered that question.
A. It is quite level.
Q. Would you answer the question yes?
A. Well, it is very near level.
Q. And how high is this area here shaded yellow above the banks of the stream itself, so far as you have observed, by the eye?
A. At the state line?
Q. From the state line northerly.
A. At the state line on the Minnesota side I should judge it might be 10 or 12 feet.
Q. I don't mean the hills now. I say, this shaded area, how high is it above the bank of the actual stream of the river, so far as can be observed by the eye?
A. I don't think it would be over 2 feet, maybe not that, I don't know for sure.
Q. It is practically, so far as can be observed by the eye, on a level with the banks of the river, the stream of the river?

Mr. Bronson: We object to that, the witness has already answered the question different.

A. There is a little elevation.

Mr. Palmer:

Q. Now, how much of an elevation is there, so far as the eye can observe, between the banks of the stream I am talking about, not the banks of the valley, between the banks of the stream and this yellow shaded land?

344 Mr. Bronson: We object to that, because he has already answered that.

A. I thought perhaps it might be 18 inches.

Mr. Palmer:

Q. And from 18 inches would you say to nothing at all in places?
A. There may be places it runs down to practically nothing.
Q. Take it opposite your farm, which you say is in Section 34.
A. In 27.
Q. Well, we will say 34; take opposite your farm which you say is in 34, Township 130, Range 47, but in Wilkin county, Minnesota, to the west how high is the land on the Dakota side above the stream of the river?
A. Right at this particular point there is practically no bank there, very little. There is a kind of a wide space there, not very wide, perhaps 20 rods wide or so. You might say that south of that bank

there isn't any bank, you might say, at all, and it gradually starts in north and gets a little deeper bank from there north.

Q. And how much of a bank is there on the easterly side next to your land in Section 27?

A. Right at the south line?

Q. Yes.

A. I don't imagine it would be over a foot high right at the south, perhaps you would have to go a few rods north before you would strike it. The channel is narrow there and the further north you go the more channel you get, wider and deeper.

Q. Why, so far as you have observed, does the channel get wider and deeper as you go towards the north?

Mr. Bronson: That is objected to as——

A. I can't answer that, I don't think.

Mr. Palmer:

Q. Have you observed anything about that; is there more of a fall in the land so far as you can observe?

A. There might be although I wouldn't say for sure.

Q. Now, so far as you observed by the eye, is there any fall whatever in the stream of the river from the state line northerly to your land in Section 27?

A. Why, I have seen the water running there, surely must be a little fall.

Q. How rapidly does the current run?

A. It isn't very fast; I don't know whether I could get anywheres near giving the accurate rate of it.

345 Q. You say that is was very slow and sluggish?

A. Yes, sir, is is slow.

Q. Indicating to an ordinary observer like yourself that there was practically no fall in the land?

A. Well——

Mr. Bronson: We object to that as already having been answered.

A. There is a pace in there I don't think there is very much of a fall.

Mr. Palmer:

Q. And when you bought land to live on, you bought a farm up on the easterly bank of the valley, did you not?

A. Yes, sir.

Q. At that time, in 1897, you didn't buy or attempt to buy any land down in the valley itself?

A. I told you how that was——

Q. Just answer the question?

A. I did not because I didn't know of any to but only this particular place that an agent had taken me to.

Q. Did you look at any land in the valley itself that year with a view of purchasing it?

A. Nothing only the piece that was right west of the northeast quarter of 34 that I bought; there was a piece in there that I used to think I would like to own until the flood conditions.

Q. You didn't look at any on the Dakota side with a view of buying it that year?

A. No, sir, I did not.

Q. What did you pay in 1897 for this land that you bought in 34 that you made your home upon?

A. $15 an acre.

Q. What did you pay in 1903 for this land next to the river in Section 27 that you say you bought from the railway company?

A. I think it was $18 an acre, that is, there might have been a few cents over or less, I wouldn't say for sure, and I gave my brother $200, he had filed on this 40 acres in the northwest quarter of the northeast quarter.

Q. Did it have a crop on it when you bought it?

A. From the railroad company?

346 Q. Yes.

A. Yes, sir, it had a crop, although I put it in myself. I made the attempt to homestead it and got beat on that.

Q. You received the crop without any payment of rent that year?

A. Yes, sir.

Q. You made a general statement, Mr. Bracken, that from 1897 on and including 1897, all of the land in this yellow area was cropped and cultivated?

A. Practically all of it.

Q. Now you used the word 'practically.'

A. I mean, the most of it.

Q. What do you know of your own knowledge in regard to that?

Mr. Pinkney: We object to that as having already been answered.

A. I didn't go over each particular section but by speaking of it as a whole I know that the majority of that land was cropped.

Mr. Palmer:

Q. All right. Your brother-in-law, Mr. Houston, owned Section 21, did he not, the north half of it?

A. I wouldn't say for sure.

Q. At that time?

A. I know that he used to own some land down in there handy to Blackmere.

Q. Well, Blackmere is in Section 21, isn't it?

A. I am not sure of the section.

Q. Well, you say it was close to Blackmere; which side of Blackmere?

A. I think north of Blackmere.

Q. Was that land cropped in 1897?

A. I don't know for sure whether it was or not. As I stated before I——

Q. Don't you know the contrary?

A. No, sir I do not.

Q. You don't know that it was?

A. No, sir, I don't think it was.

Q. Was any part of Section 21 to your knowledge cropped in the year 1897?

A. I am not sure, as I told you before I am not familiar with the description of the lands down in here.

347 Q. Was any part of the land owned by your brother-in-law, Mr. Houston, in the shaded area, cropped in 1897?

A. I don't know whether it was or not. I don't know whether he owned this land at that time or not; that is, I never heard him speak of it.

Q. Was any part of the land owned by your brother-in-law, Mr. Houston, cropped in 1898?

A. I couldn't say whether that one particular piece has ever been cropped or not.

Q. Then as to subsequent years you know nothing about it?

A. This one particular piece?

Q. Yes, sir.

A. I can't say that that particular piece had been.

Q. What do you know about Section 34 on the Dakota side, was that cropped in 1897, Township 129, Range 47?

A. If you can tell me the owner I would be able to answer it.

Q. You don't know who owns it nor who lived on it at that time?

A. I do not.

Q. Then do you know whether any part of it was cropped in the year 1897?

A. Not particularly that one certain piece.

Q. 1898?

A. I do not.

Q. 1899?

A. I don't know for sure.

Q. 1908?

A. I wouldn't say for sure that one particular piece is broke up at all or not.

Mr. Bronson:

Q. You don't recognize that piece by that description?

A. No, sir, I do not.

Mr. Palmer:

Q. What do you know about Section 33?

A. I can't give you any definite answer, no, sir, I am not familiar with the description of that land.

Q. Do you know anything about 32 from 1897 to 1915?

A. Not from the description of the land.

Q. Isn't that land largely swamp and rock?

348 A. I wouldn't say for sure. I know that I have been over a good deal of this land; you might find some little pieces in there that had rocks and a great deal that has none.

Q. If it was covered with water you don't know whether it is rocky or not, of course?

A. I don't mean some little slough there—you had reference to any slough that had water in it——

Q. I am asking you about Section 32; isn't there a big swamp in there?

A. Who lives on the land? I don't know who owns it.

Q. I thought you know all about it; if you don't know anything about it, say so.

A. I will say I am not so familiar with the descriptions as some of the farmers on the Dakota side.

Q. You know the land but not the descriptions?

A. That is the idea.

Q. Can you tell me any stated piece of land in that entire area that was farmed in the year 1897 except yours?

A. I know Mr. Geier had a man who put in a crop that year.

Q. Where is that?

A. I don't know where Mr. Geier's land is; he put in his crop that year.

Q. That is the southwest quarter of 33?

A. Yes, sir.

Q. That is down next to the river; how about the land down next to the river in Section 33, in 1897, was that put in?

A. He told me it was.

Q. How about that land that had those buildings on it they called the Mishki buildings, was that put in in 1897?

A. No, there was a piece of land here they used for pasture; they used to have a great many stock there in 1897.

Q. Now, you say Geier put in a crop?

A. Yes, sir.

Q. And you were not up there?

A. No, I was not, but he told me about it.

Q. Who else put in crop there in 1897?

349 Mr. Bronson: He wasn't there when it was put in.

Mr. Palmer:

Q. Who else harvested crop there in 1897?

A. Mr. Taylor and Kurtz, different farmers that lived along there I heard them speak of harvesting crops.

Q. How was it in 1898?

A. I think they harvested crops.

Q. You don't know to what extent, what percentage of their land was put in?

A. 1898?

Q. Yes, sir.

A. Why, I am not sure just to what per cent.

Q. In 1908, what percentage of that land was put in crop?

A. I think it was all excepting some part that was perhaps used for hay, little low places, perhaps.

Q. You wouldn't undertake to say what percentage was cropped in the year 1907 or 1908, would you, Mr. Bracken?

A. No, sir, I would not.

Q. No,——

A. You mean, on the Dakota side?

Q. Yes, on the Dakota side.

A. I am not so familiar with that as on the Minnesota side.

Q. As a matter of fact, you have never had occasion to travel over this land on the Dakota side from the state line north to Fairmount to any extent, Mr. Bracken?

A. Why, I have been over it different times but not so frequently as those that would live on the opposite side.

Q. And you would not undertake to testify with any degree of certainty what percentage of the land was cultivated from year to year up to 1915?

A. Well, I think most of it.

Q. That is just simply a general impression that you have?

A. Well, I have seen grain raised there, seen grain stacks down in this locality, saw grain stacks, and seen that they were threshing from year to year.

Q. You have seen stacks of hay there this year on that side, haven't you?

A. Very few, I am speaking of grain stacks.

350 Q. You have seen some grain stacks?

A. This year?

Q. Yes, sir.

A. Not in that shaded area.

Q. Not any grain stacks whatever in that shaded area this past year, 1917?

A. I said I had not seen any grain stacks there this year.

Q. Whether there has been grain raised there this year you don't know anything about?

A. I haven't been over there.

Q. Isn't it true there was a great quantity of hay put up in that shaded area in 1917?

A. There are a few stacks, not like it used to be.

Q. How many stacks *to* you think are there, one hundred?

A. No, sir, I don't imagine there is. I have no recollection of seeing anything like that number.

Q. What is your best judgment?

A. I don't think I have seen over twenty-five, there may be more.

Q. Do I understand you to say that you have not been over on the Dakota side this year, 1917, to make any examination of the land along there?

A. No, sir, not south of Fairmount.

Q. And when you make the statement it is all grown up to cattails, you make the statement without any personal knowledge of the conditions there?

A. I could see from going to Fairmount from my own land, but

as far as going south on this road down in here (indicating), I haven't been there.

Q. South down through the territory?

A. No, sir.

Q. Is it true that there is more water flowing through the Rabbit river now than formerly?

A. I think there is since this—there has been quite a number of ditches that has been put in.

Q. You are familiar with the area know- as the Tintah slough?

A. To some extent, yes, sir.

Q. That has been drained into the Rabbit river?

A. I know there is——

351 Mr. Bronson: We object to that as improper cross-examination, assuming a statement not proven.

A. I know there is a ditch leading from the Tintah slough that drains into the Rabbit river.

Mr. Palmer:

Q. And that has been constructed quite a number of years?

A. Yes, sir.

Q. 4 or 5 or 6 years?

A. I think that ditch—I think there was a ditch put there about 1896, wasn't it?

Q. Do you say as early as that or 1906?

A. 1896. I told you before I bought my land I drove up into Wisconsin with the threshing so that I could select a location and, of course, I had two teams, I wanted to get to work as much as I could. When I fell down on that I was referred to the state ditch, that I might get work there.

Q. That was further east than the Tintah slough, wasn't it, to your best recollection?

A. The understanding I got was to drain the slough.

Q. What I mean is this, the Tintah slough was drained into Rabbit river long prior to 1915?

A. Yes, sir.

Q. And within your knowledge, were there a number of other drainage ditches constructed, draining into Rabbit river, prior to 1915?

A. I am not just sure, it seems to me I have heard it talked about——

Mr. Bronson: We want your own knowledge.

Mr. Palmer:

Q. Within your own knowledge.

A. No, sir, I wouldn't say as to that.

Q. But what you do know, Mr. Bracken, is this: that the current is more rapid, there is a greater volume of water in the Rabbit river than in the Bois de Sioux?

Mr. Bronson: We object to that, that is not his statement at all.

A. A greater volume of water where, in the Rabbit river than there is in the Bois de Sioux?

Mr. Palmer:

Q. Yes, sir.
A. There hasn't been in the last three years.
Q. There has not been? What did you mean by your statement that the currect was more rapid in the Rabbit river than in the Bois de Sioux?

352 A. I will admit that the current is swifter in the Rabbit river than it is in the Bois de Skoux although it doesn't flow all summer.

Q. But it flows more rapidly when it does flow?
A. When it is full it does flow more rapidly.
Q. And now, as to the volume of water in the Rabbit river compared with what is was in the earlier years that you knew it, is there more or less?
A. Well, I wouldn't say there is more or less, I wouldn't——
Q. You haven't observed as to that?
A. No sir.
Q. What township do you live in, in Wilkin county?
A. Township 130.
Q. What is the name of it?
A. Campbell.
Q. At the time that you made your observations of the Mustinka river, what would you say as to the comparative volume of water in that and in the Rabbit river?
A. At the time we crossed this river, the Mustinka river, there was more water running through that, passing through that channel than there was at any time that I have crossed the Rabbit river.
Q. That was what year.
A. 1916.
Q. Did you see the Rabbit river in 1916?
A. I did, on my way—I was on my way to Breckenridge.
Q. Was there considerable water going through that then?
A. Quite a little.
Q. Take ordinarily, at the times you say you observed the Mustinkaka river, what would you say as to the comparative volume of the two streams, the Rabbit and the Mustinka?
A. You mean which carried the greater amount of water?
Q. Yes.
A. I think the Mustinka carried the greater amount, that is, at the times I happened to cross them.
Q. But you couldn't say in general what the comparative amount would be?
A. I wouldn't want to go quite so strong as to state the exact amount.

353 Q. At the times you visited your brother, who you say lives some miles northeast of Norcross, you say you went first to Tenney?

A. Yes, sir; that is, I didn't strike the town but I followed the road straight east from my place until a few miles south of Tenney, and then struck towards Tintah.

Q. Did you pass through Tintah?

A. The south part of town.

Q. Then you followed the railroad track southeasterly?

A. Yes, sir, I followed the railroad track.

Q. Southeasterly to Charlesville?

A. There wasn't any town there at that time. The first station, if I remember right, was Norcross between Tintah and Herman.

Q. Did you follow to about the vicinity where Charlesville is now?

A. I think so.

Q. And then you went which way?

A. I went kind *of off* towards the direction where my brother lived.

Q. That would be easterly?

A. Yes, sir.

Q. Easterly of the track?

A. Yes, sir.

Q. Then,——

A. I don't say I was on that side of the track all the time; at times I was on different sides of the railroad track.

Q. You see this area here colored light blue?

A. Yes, sir.

Q. Do you undertake to say that you crossed over or were upon any part of that area at the time you made that trip down to your brother's?

A. I won't say. I was across this part here (indicating); I had a chance to observe the condition of these lands, whether settled or not.

Q. You didn't see many houses there?

A. No, sir.

Q. Have you been there this year?

A. No, I have not.

354 Q. Have you been there any time since 1900?

A. I don't hardly think I have.

Q. The summer of 1908, you say, the spring and summer of 1908, you say you had a considerable flooding of the lands along this Bois de Sioux valley?

A. Yes, sir; that is, not—we wasn't troubled in the spring with water so as to interfere with *out* putting in of the crops, but after the crops were put in, sometime in June, perhaps, the water commenced to spread out on the land. We wanted to see what was the cause of it and I for one proposed to take a boat and follow the stream up to see whether anything obstructed it and we found the bridge——

Q. You found this bridge 2 miles north of Fairmount?

A. Yes, sir.

Q. You found some moss?

A. Some moss and some grass and different things that obstructed

the bridge until we pried a plank off the bridge, we jammed down a 2x4 a good deal like jamming it into a haystack.

Q. You got that out?

A. Yes, sir.

Q. How long was the water going down?

A. I wouldn't give the exact time, I should judge anyway within a week it drained off all our lands.

Q. The water came up that summer very similar *wo* what it did in 1915, did it raise in about the same manner?

A. No, it didn't raise quite so fast.

Q. But it was about the same time of the year?

A. Well, I think it was in June some time. I wouldn't say it was exactly the same time, June *or* July.

Q. It didn't come up, you say, quite so fast, but it came up in about the same manner?

A. Didn't come so fast nor it did not get so high, didn't flood so much land.

Q. But it came from the south?

A. Yes, sir.

355 Q. And was flowing north?

A. Yes, sir.

Q. And came from Lake Traverse?

A. Well, that is the only point that I know it could come from.

Q. If then, Mr. Brackin, in the light of that experience, the channel of the Bois de Sioux to the north of Fairmount were obstructed in any way, the water would rise in the Bois de Sioux valley and flood the land?

A. Why, certainly.

Q. Do you recall any summer floods subsequent to 1908 in the Bois de Sioux valley there?

A. Why, very temporary, I think, in 1906; it got out of its bank a little bit, and I and some of the others, I remember of taking a boat and following the channel as *as* far as Wahpeton with one of my neighbors.

Q. What for?

A. We thought that the stream was a little unnatural, the conditions, and we found that there was one farmer there had a little land on each side of the river and had a foot bridge and fence post driven down and the moss collected against that. We asked him to remove that, we told him it was backing the water on our lands and he didn't object to it and we cut our hay.

Q. You didn't harvest your crops?

A. In 1906?

Q. Did you harvest your crops?

A. Yes, sir.

Q. But the water began to rise in the summer of 1906 about the same as it did afterwards in 1908 and 1915, only not so high?

A. Not so high, it didn't spread out on the land at all that I used for the purpose of raising crops of grain.

Q. What month was that it began to rise in 1906 in that way?

A. It might have been May or the first of June.

Q. Substantially the same season as the other two summer floods?

A. Yes, sir.

356 Q. Finding this foot bridge and those fence posts, you assumed in your own mind that that was the cause of the rise of the water?

A. We thought it was and we observed that after they removed that that it went down so we wasn't troubled any more that season with——

Q. That season the rise was gradual?

A. Very slow, yes, sir.

Q. And came from the south?

A. Yes, sir.

Q. And flowed to the north?

A. Yes, sir.

Q. And came from Lake Traverse?

A. Yes, sir.

Q. What other summer floods have you experienced?

A. I don't remember of any excepting in 1908 and 1915 and 1916 and 1917.

Q. You didn't have a summer flood in 1917?

A. No, but our lands were wet so we couldn't put in any crops.

Q. You didn't experience any rise of water in 1917?

A. No, sir.

Q. In the summer of 1897——

A. Hold on, there was a little raise in 1917 but not so much.

Q. In the summer?

A. Yes, sir, along after the snow had receded and the melting snow water went down in our locality there was a little rise in the river.

Q. And, of course, that was the water in the spring at the time of the melting snows and the spring rains you looked for more or less water along the valley there?

A. In the winters of deep snows.

Q. Well, in the spring rains you would look for some?

A. Not only when we have deep snows, we never expect to have ours land flooded so we couldn't put in crops.

Q. You look for high water along the Bois de Sioux valley in the spring?

A. Not sometimes.

357 Q. And flowing towards the north?

A. Yes, sir.

Q. It thaws out at the wrong end first?

A. Yes, sir; of course, there is sometimes obstructions in the channel north with snow and ice but after that gets clear we do not figure on any trouble unless there is an exceptionally deep fall of snow or heavy rains in the spring.

Q. And then you look for more or less overflow from the river?

A. Some.

Q. Now, take it the summer of 1913, did you experience any summer flood?

A. No, sir, we did not.

Q. Or in the fall of 1913?

A. I know there was nothing to interfere with our plowing of our lands along the river, that I do know.

Q. Take it in 1914, early in the spring, was there much overflow of the river?

A. No, sir, there was not. That is the year that I broke up the very lowest land I had and raised a good crop of flax.

Q. Then you would say from your observations in the spring of 1914, there was less water in the river than usual?

A. We wasn't overflowed any at all.

Q. I say, was there rather less than usual?

A. Yes, sir, there was less.

Q. And during the summer of 1914, was there any overflow of the river?

A. Not in my place.

Q. Was there in any of those lands at any time to your knowledge?

A. I don't think there was; if there was I don't see why the water wouldn't have come as far north as my place.

Mr. Bronson: What year was this?

Mr. Palmer: 1914.

Witness: In the fall there was some but not during the summer.

Q. In the fall of 1914 there was quite a heavy rainfall?

A. I didn't think there was enough rainfall so we considered it a wet fall.

Q. Was there a wet fall there in the valley?

A. I don't think it was; in fact, I know it was not.

358 Q. The spring or early spring of 1915 what was the condition there?

A. The land was in fine shape; I put in the land along the river, the very lowest of it I seeded first that year.

Q. Then in April and May, through March, April and May, 1915, you noticed no rise of the river whatever?

A. Perhaps the last of May there might have *b*been a little water come out of its banks.

Q. Not before that?

A. I don't think so.

Q. Up to that time there was rather less water in the river than usual?

A. There was, yes, sir, there was a little water in the channel all winter there was water in the channel, it was full all winter and it froze up that way.

Q. But that spring you put in all of your land clear down to the water's edge?

A. Clear down to the channel in Section 27.

Q. So far as you know, that was the condition of things all through the Bois de Sioux valley that spring?

A. I didn't hear anybody complain of the water interfering with the putting in of their crop that spring.

Q. Generally speaking in 1915, beginning with the latter portion

of May and 1st of June, what was your observation as to the amount of rainfall in that vicinity, that area, generally speaking?

A. In what year was this?

Q. 1915?

A. Why, I wouldn't consider it an unusually wet season.

Q. Do you know anything as to the amount of the precipitation compared with other years?

A. No, I do not.

Q. Wasn't it, in fact, a very wet fall, Mr. Brackin?

Mr. Bronson: We submit he has answered the question, he said he don't know.

A. We had frequent rains, I don't think it was an unusually wet fall.

Mr. Palmer:

Q. How was the plowing, how about the plowing on your home farm?

A. In 1915?

359 Q. Yes, sir, the fall?

A. The part that wasn't flooded I was able to plow.

Q. It was pretty wet, wasn't it?

A. A little wet.

Q. And lands outside of your farm going easterly in Wilkin county?

A. A great many of them were able to do their plowing.

Q. And some of them were not?

A. I wouldn't say they was not; of course, there was some lands not plowed.

Q. What was the matter?

A. I wouldn't say it was on account of being too wet to plow. Of course, if I could plow mine I don't see why some of those that were east in the next range of sections—I know that my neighbor in the next section east got all of his plowing done and, of course, if there are some that wasn't quite so fast with their work, I don't consider that the fault of the season.

Q. I am asking you what is your recollection as to that particular fall, as to the wet or dry conditions of the land.

A. I think we had quite a number of rains that fall.

Q. And you think that, generally speaking, the land was wet that fall outside of this area?

A. Well, it might, a little.

Q. And that condition continued through the winter?

A. Yes, sir, froze up that way, you mean?

Q. Froze up that way?

A. Yes, sir.

Q. Let me understand you, in the fall of 1914 you say that there was some wet weather?

A. That I considered a good fall for doing plowing.

Q. How about the rainfall that fall, was it more than usual?

A. I don't think it was unusual.

Q. In 1915 you think it was more than usual?
A. I think it was more than 1914.

(At 12:30 recess was taken until 1:30 o'clock P. M. September 13, 1917.)

360 Sept. 13, 1917. Hearing convened pursuant to adjournment.

Cross-examination of Theodore Brackin resumed.

By Mr. Palmer:

Q. What damage do you claim to your crops for 1915 and 1916?

Mr. Pinkney: Objected to as not proper cross-examination.

A. Why it is a complete loss for 1915 and 1916 with the exception of about sixty acres.
Q. What amount in money?
A. Well I didn't make any estimate.

Mr. Bronson: Objected to as he has no claim in issue in this action.

A. I haven't made an estimate of what it would be for 1916 and 1917.
Q. Did you make an estimate for 1915?
A. I thought it would be very reasonable to call it $2,000.
Q. Did you make an estimate of that claim to Charles Pinkney?
A. I told him I thought I was damaged about that much.
Q. Did you contribute to this fund for the expense of carrying on this suit on behalf of the complainants?

Mr. Pinkney: Objected to this line of interrogation as not proper cross-examination.

A. Why, I didn't consider I contributed to the state of North Dakota, no.
Q. Did you contribute to this fund for the expense of carrying on this suit on behalf of the complainants?
A. I don't think I did.
Q. You have contributed nothing toward the expense of maintaining this action?
A. I contributed some.
Q. And was that on the side of the complainant or defendant?
A. Our lands are ruined and I was anxious to get some relief.
Q. And so you contributed to the expense of carrying on the suit in behalf of the state of North Dakota?
A. Well, I didn't consider that I was paying a part of their expense at all.
Q. Well, what expenses did you think you were paying?
A. I wanted relief for my own benefit was my idea.

Q. Well you mean you employed or contributed to the employment of attorneys to represent your own private interests?

A. Later.

361 Q. You did?

A. Yes, sir.

Q. And you understand that you are being so represented in this case?

A. I did not understand that I was to be represented in this case that is being tried now, no.

Q. Did you have any understanding that your damages were to be compensated for in any way from the result of this suit?

A. I can't say that I did.

Q. Do you say that you didn't?

A. No, I didn't have an understanding on this case.

Q. Let me ask you this question—do I understand you to say that you have contributed money toward the expense of employing counsel upon the North Dakota side of this case?

Mr. Pinkney: We object to that question as assuming a statement that the witness has not made an- in direct conflict with his testimony.

A. I did not understand that I had contributed for that purpose, no.

Q. For what purpose did you contribute it?

Mr. Pinkney: Objected to as incompetent, irrelevant, not proper cross-examination.

A. Why I thought we might be able to get relief in the matter of drainage or something of that kind, but I didn't understand that I was to help pay any part of North Dakota's claim.

Q. Did you understand that you were helping to pay any of the expense of the maintenance in this action?

A. Not in this particular action, no. I did not understand it that way.

Q. Well, was it any action that is now pending?

A. Why, I understand——

Q. Was it in the South Dakota suit that you contributed these funds?

A. I did not understand it was in the South Dakota suit.

Q. Well, are you one of the two parties, citizens of Minnesota, whom Mr. Pinkney here, Charles R. Pinkney, testified as having contributed funds towards the maintenance of this action?

362 Mr. Pinkney: Objected to as stating facts contrary to the record and contrary to the testimony of Mr. Pinkney, immaterial, and improper cross-examination.

A. Why, I am one of the parties, yes, that contributed.

Direct examination.

By Mr. Bronson:

Q. You haven't paid the state of North Dakota any money?
A. No sir.
Q. You are not a party to this action in any way, shape or form?
A. I never understood that I was.
Q. And whatever funds you have contributed any way at all to seeking relief from the conditions that have existed up there from the overflooding of these lands, has it been with an understanding of securing such counsel and instituting such action in your behalf in Minnesota as might be determined upon?
A. Yes sir.
Q. And has no relation whatsoever to the case of North Dakota and its citizens against the state of Minnesota?
A. No sir.
Q. And you never so understood it?
A. No sir.
Q. Counsel has asked you several questions about the flooded conditions existing in the spring of 1897. You have no knowledge of those conditions except for the time after you got there, sometime in May, 1897?
A. Yes sir.
Q. Were there flood conditions existing at that time when you came there in May, 1897?
A. Not on this land that I own there wasn't.
Q. Any on the land that you own or on any other land?
A. I didn't notice any along that river.
Q. Which river?
A. The Bois de Sioux river.
Q. So if counsel directed any question as to the overflood in the spring of 1897 being similar to 1915 and 1916 you have no knowledge of it?
363 A. Why, I know that the lands along that yellow part of the map there the farmers put in their crop so far as was broke up at that time.
Q. You don't appreciate the question I am asking you. You weren't there in the spring of 1897 at the time that there were any flood conditions, if there were any?
A. No, I wasn't.
Q. Consequently you don't know just what the extent of the flood, if any existed in the spring of 1897, was?
A. Nothing only what the neighbors told me.
Q. And you don't pretend to say what the neighbors told you?
A. No, sir.
Q. Consequently as to the extent of the flood conditions in the year, 1897, if there were any, you know nothing about them?
A. Not in that locality, no sir.
Q. You did make observations in the year 1897 over this territory of the fact that crops were put in?
A. I did.

Q. And *b*rain crops?
A. Yes sir.
Q. Including wheat, oats, barley and flax?
A. Yes sir.
Q. And some corn?
A. Yes sir.
Q. And some—?
A. Yes, sir.
Q. And in this territory in the year 1897 those crops were harvested and threshed?
A. Yes, sir.
Q. You saw that?
A. Yes sir.
Q. You are also able to testify, are you, that in the year 1915 and 1916 that condition did not exist of harvesting or threshing crops?
A. There was no crops harvested in 1915 and 1916.
Q. Counsel examined you at some length with reference to what we might term the topographical or level formations existing between the state line of North Dakota on the south and running up to the Rabbit river on the north. I will ask you to state generally whether or not your visual observation of the territory involved and as heretofore mentioned in this question shows that on the easterly side of White Rock in South Dakota the banks east of town, as you leave the town, rise up to about from twenty to twenty-five feet?
364 A. Quite high banks. I would not be able to say how high.
Q. What would you judge it to be—twenty-five less or twenty-five more?
A. Well, I think they are less.
Q. A little less?
A. Yes sir.
Q. And as you proceed westerly from the town of White Rock you may state whether or not towards the south and west there is an appreciable elevation running upwards of twenty-five feet?
A. There is banks perhaps that might be ten or twelve feet high. I couldn't say for sure if that is right. As they go north they decrease.
Q. Now the general nature of the territory north of the state line on the westerly side of the Bois de Sioux river up to Fairmount—you may state whether or not that is, generally speaking all a level prairie formation consisting of black loam soil sloping gradually down in an easterly direction towards the Bois de Sioux river?
A. That is correct.
Q. And whether or not this territory, generally speaking, between the town of Fairmount and the state line of North Dakota westerly of the Bois de Sioux river extends back—consisting of this formation—some five or six miles at least?
A. Yes sir.
Q. Gradually sloping eastward to the Bois de Sioux river?
A. Yes sir.
Q. And to what extent between Fairmount and the state line to

the south in the Minnesota territory does this general prairie formation exist?

A. Why the banks are a little higher on the Minnesota side although as you go farther north they gradually become a level prairie.

A. In other words this territory that we are talking about is, generally speaking, not a hilly, rolling territory?

A. No sir, it isn't.

Q. It is, generally speaking, a level prairie formation?

A. Yes sir.

Q. Sloping gradually down to the Bois de Sioux river?

A. Yes.

365 Q. Now as you go north from the Rabbit River along the Bois de Sioux the banks of the Bois de Sioux river are comparatively higher or not as compared with the banks below where the Rabbit river flows into the Fois de Sioux?

A. They are higher as you go north.

Q. Now with reference to the Bois de Sioux River between the state line of North Dakota and South Dakota and the place where the Rabbit River flows into the Bois de Sioux you may state whether or not this Bois de Sioux river flowing in a northerly direction has a distinct recognizable channel?

A. Yes, it has. There are places of course that the banks are not so high as others.

Q. My question was, has it a distinctly recognizable channel throughout that distance?

A. Yes.

Q. Has it a distinct bed that you can recognize through that channel?

A. Yes sir.

Q. And when the river flows normally—not out of its banks, does it or does it not flow in that channel?

A. It does flow in the channel.

Q. Now throughout the distance I have mentioned are there well defined, recognizable banks on both sides of this Bois de Sioux river which in some places may be higher and some places lower, but nevertheless banks?

A. Why there are some banks, yes.

Q. Now you say that in this territory which I have described in my last questions the land on the Dakota side slopes away from these banks in some places in a comparatively level manner and in some places rising comparatively as you go westward?

A. It does.

Q. Is that a correct statement?

A. It is.

Q. Now I will ask you to state whether or not there has been any period during the years that you have lived there up to the year 1915 when you have not seen crops actually planted, actually sowed, harvested and threshed in this territory within the yellow designated marks and limits as mentioned on Exhibit 1?

A. There is not.

366 Q. Are you able to state in every one of those years while you were there up to 1915 there have been crops harvested?

A. I wouldn't say every one, but take it on an average I think it has been, because I wasn't on each particular piece of land.

Q. Mr. Brackin, you testified that in the years 1915 and 1916 there were no crops there?

A. There were no crops.

Q. Wait until I finish my question—there were no crops there that were harvested and threshed—in this yellow designated territory?

A. In 1915?

Q. And 1916 too?

A. There was not, no sir.

Q. Now my question is, has there been any year during the years you have lived there between 1897 and 1915 when there was not raised every year during all of those years some crops there, wheat, barley, oats, or flax, corn or hay on these lands?

A. There wasn't any year between those two dates.

Q. In places along that territory where it might be tilled or farmed?

A. Yes, sir.

Q. And can you state what was the reason why crops could not be raised in the years 1915 and 1916 as you observed them?

A. Why the flood waters coming from the south?

Q. As you have described in the evidence?

A. Yes, sir.

Q. Counsel has asked you a question or two concerning the Tintah slough and the Tintah slough drainage, have you any knowledge of the Tintah slough?

A. Yes, sir, I know there is a slough over near Tintah.

Q. Have you ever visited that slough or had any direct personal knowledge about it?

A. Not a great deal, no.

Q. How much, if any?

A. I know there is a great deal of wet land down in that locality and that is about all I could say.

Q. That is your general observation as you happened to observe as you went through Tintah?

367 A. Going to and from Tintah.

Q. As I understand, you haven't any direct personal observations on the ground of what we call the Tintah slough which is shown on the map along in Sections 30 and 36 in 129, Range 46?

A. No sir.

Q. And have you or have you not any direct personal knowledge as to any ditch construction of any kind or character with reference to this Tintah slough?

A. Why I remember when driving to Tintah of crossing a ditch that had a bridge over it, and I thought the water drained north, although I couldn't swear to it because there was no water running at the time.

Q. Is that all you know about it?

A. Yes, sir.
Q. Are you able now to testify whether it was a ditch or the river?
A. There was no water in it and I couldn't swear whether it was the head of the Rabbit river or not.
Q. Do you know what year that was?
A. It was the year I went to harvest my brother's crop.
Q. 1900 or prior to that?
A. I think it was 1900.
Q. Counsel has asked you a few questions about plowing in the year 1914. What do I understand conditions to be in the fall of 1914 with reference to ability to plow farm lands in this vicinity, and as to what was done?
A. The chance of plowing was good. It was a very dry fall.
Q. In 1914?
A. Yes, sir.
Q. And in 1913?
A. Why, I remember I got my plowing all done, I didn't consider it a very wet fall.
Q. As a matter of fact in the Spring of 1915 your crops were put in in splendid condition, were they not?
A. Yes, sir.
Q. So you were not bothered with wet conditions in the fall of 1914 which kept you from plowing or prevented farming operations that fall?
368 A. No, sir, there was no water in the river until late in the fall of 1914, that is up at this point opposite my land. I remember that very distinctly.

Recross-examination:

By Mr. Palmer:

Q. Do you remember about 1916 as to rainfall?
A. You mean the fall or the summer months.
Q. Well, I mean the whole season?
A. Well, I think we had frequent rains that season.
Q. Is it your recollection that you had more rainfall than usual?
A. Well, I think just as much anyway. I wouldn't say there was more or I wouldn't want to say there was less, because I didn't keep a record.
Q. 1916 was an average year in the matter of rainfall?
A. Well, it was just as much as our wettest seasons I should think.
Q. What percentage of a crop did you get on your land that year that was not in this flooded area?
A. What year are you speaking of?
Q. 1916.
A. What per cent did I harvest?
Q. Yes.
A. I harvested all the land that wasn't flooded in 1916. I had about sixty acres that I harvested out of 287 acres.
Q. I asked you what percentage of a crop you got?
A. You mean in bushels?

Q. Yes.
A. A very light crop. I wouldn't say just as to what percentage. I know it was a very light crop. It was struck with rust.
Q. About what did you get?
A. I think about four or five bushels to the acre—that is the wheat.
Q. And a good average crop is about how much?
A. Why 12 or 15 to 18 bushels is an average crop.
Q. How about barley that year?
A. I didn't raise any barley that year.
369 Q. Did your beighbors raise any?
A. Some of them did.
Q. What percentage of crop did they get?
A. I think it was light.
Q. Small percentage?
A. Yes, sir.
Q. And the same is true of oats and corn and flax?
A. Well, there was some good crops of corn and some pretty fair crops of wheat. I do know some that went as high as ten bushel.
Q. Well, I am speaking of the average crop in that vicinity?
A. It was light on account of being struck by rust.
Q. Corn?
A. No, not the corn. I though- you were speaking of wheat.
Q. What percentage of a crop of corn that year in that locality?
A. It was light.
Q. What was the matter with that?
A. Well, I don't know, it may be the season wasn't——
Q. The season was cold and wet, wasn't it?
A. A little cold.
Q. And considerable wet?
A. Quite a lot of rain that year.
Q. Did you contribute toward the expense of carrying on this suit with the understanding that if any relief was obtained that you would get the benefit of it?

Mr. Pinkney: Objected to as already having been asked and answered on his cross-examination in chief.

A. Well, I didn't consider that I was paying a part of North Dakota's expense. I thought in case that we were able to prevent any further ditching or get relief that might benefit our premises by preventing them from being flooded.
Q. Well, you expected that?
A. Well, I hoped that I might.
Q. Accomplish that?
A. That much anyway.

370 WALLACE J. TAYLOR having been called as a witness on behalf of complainants was duly sworn and testified as follows:

Direct examination.

By Mr. Bronson:

Q. What is your age and residence, Mr. Taylor?
A. My residence is the Village of Fairmount, I am 58 years old. I have lived there in North Dakota since 1880.
Q. When did you go to Fairmount, North Dakota?
A. Spring of 1880.
Q. Lived there ever since?
A. I have.
Q. And what is your business?
A. Farmer.
Q. Do you own some land in this territory that is marked on the map under yellow designation?
A. I do.
Q. Will you describe that land?
A. It is the East half of the East half of Section 5, 129-47, and the West half of the West half of Section 4, same description.
Q. How long have you owned it?
A. Since the spring of 1880 when I located there at that time.
Q. Have you farmed that land continuously since that time?
A. I haven't lived there continuously.
Q. Has it been farmed to your knowledge since that time?
A. Yes, sir.
Q. And how farmed?
A. By raising of small grains.
Q. How much of it has been broken up?
A. All of it.
Q. Up to the year 1915 that farm, if I understand correctly, has been cropped from year to year in small grains?
A. Yes, and corn.
371 Q. Are you familiar with this territory designated under the caption of yellow on this map in North Dakota, and which has been flooded in the years 1915 and 1916?
A. I think so.
Q. When was the town of Fairmount established?
A. About 1883, I think, possibly 1884. I don't remember exactly.
Q. About when did the Milwaukee come through?
A. I think in '84.
Q. And about when did the Great Northern Railway come through?
A. In '88, I think.
Q. And the Soo?
A. The same year.
Q. About what time was this territory here along the Bois de Sioux river in North Dakota settled, developed?

A. Between the years 1880 and 1890, I think the most of it.

Q. Describe generally the extent to which it has been settled as far as breaking up lands, putting on buildings and raising crops is concerned?

A. That land was never all broken up. I think about eighty per cent of it has been broken. I think twenty per cent was hay land.

Q. Now of this land that has been broken up in this territory involved, for what period of time has it been cropped as you have observed it?

A. From the time it was broken up.

Q. Up to the year 1915?

A. In fact the crops were sowed in 1915, but not harvested.

Q. If I understand you correctly, between the years 1880 to 1890, this territory in North Dakota along the Bois de Sioux to the west was settled and broken up up to the year 1890, was it?

A. Practically eighty per cent of it in 1890 had been broken up.

Q. Now this territory is situated in Richland County?

A. Yes, sir.

Q. And when you came there in 1880 to what extent was Richland county settled?

A. Well, not very much of it, not in our part of the county at least.

Q. How many townships in the county?

A. I don't know. I couldn't tell that.

372 Q. Well, relatively how did this territory settle up between the Rabbit river on the north and the state line on the south along the Bois de Sioux river and west of the Bois de Sioux river as compared with other portions of the county?

A. Well, I don't know as I can answer that question. You say how it settled up?

Q. Relatively?

A. People came in and filed on the land and made settlement.

Q. In the early days were these lands in Richland county and around near Fairmount in North Dakota lands of the United States government subject to homestead?

A. They were.

Q. And did you or did you not homestead some of your land?

A. I did.

Q. Under the homestead laws?

A. Yes sir.

Q. Now I ask you the question with reference to what territory seemed in those early days to be settled first, whether it was the territory west of Fairmount and north or south of Fairmount along the Bois de Sioux river,—relatively how it setted up?

A. Well here and there. Take it in the summer of 1880 you would see houses dotted around here and there. Land men would bring them in there and they would locate some one in here and another one off here and another one off here, and then fill in between afterwards.

Q. Now you homesteaded what quarter section?

A. I homesteaded the east half of the east half of 5-129-47.

Q. Is any of this territory a portion of the territory that was over-flooded by the waters of 1915 and 1916?
A. There was not much of that quarter section that was flooded.
Q. In the year 1916?
A. Very little of it except leading up into some sloughs on this quarter that I homesteaded.
Q. You took some land to the east of that which was flooded?
A. Yes sir.
Q. You bought that subsequently?
A. No, I took it at the same time as a tree-claim.
Q. Under the U. S. laws applicable to tree-claims?
373 A. Yes sir, and I afterwards abandoned it as a tree-claim and filed on it as a pre-emption and proved up on it.
Q. How much land?
A. 160 acres.
Q. Now at the time you settled on this land, taking it either by tree-claim preemption or homestead how about the section to the west of you—was that taken up and settled?
A. That was taken up about the same time.
Q. And the section to the south of you?
A. Just a little later, I think.
Q. Section 8 was taken up a little later?
A. I think the next summer.
Q. And how about Section 31 to the Northwest of you?
A. I think that was taken the year following.
Q. And how about Section 7 to the Southwest of you?
A. I think the next year.
Q. So I take it that you were one of the early settlers in this district?
A. Yes sir.
Q. Was there any settled there before you?
A. Yes sir, there was a Mr. Kraft and a Mr. Spalding. There was five or six in there. Perhaps some had filed on their land the year before, but they were not living there at the time.
Q. When you come there in 1880 along the Bois de Sioux river or within the section of land bordering on the Bois de Sioux river were there any settlers then in occupation of the land?
A. Yes, a few.
Q. Can you recall one?
A. I can recall Mr. Kraft and Mr. Spualding, and Mr. Griffin and Mr. Sherburne.
Q. Those men living now?
A. Most of them dead. Most of them were older men.
Q. At the time they settled?
A. Yes, most of them middle-aged at the time or a little older than middle-aged men.
374 Q. During the time you have lived there all these years you have become familiar, have you not, with the Bois de Sioux river and the manner in which it over-flooded the lands through which it ran in this territory involved?
A. I think so.
Q. You have had occasion to observe it continuously during these years?

A. I have.

Q. And some of this land which you say you preempted, does it or does it not border on the Bois de Sioux river?

A. Well not entirely on the river itself. The east side of it is three-quarters of a mile from the main river.

Q. The Bois de Sioux?

A. Yes, sir.

Q. And have you any land bordering on the Bois de Sioux?

A. I have not.

Q. The nearest you have is ——

A. Three-quarters of a mile from the main river.

Q. Now will you state generally the conditions of overflow which you have witnessed this territory to be subject to in the year 1890 up to the year 1915?

A. In 1881 we had—that was the spring of '81 we had three feet of snow on the level all over that prairie, and in the spring of '81 we had very high water, almost as high as it was in the spring of 1916. That water lay there perhaps fifteen days and was all gone.

Q. As to the conditions in 1881 for raising crops on the land flooded?

A. There was none of that land broken in '81. I don't think there was a particle of that river land broken up at that time. We cut hay on my quarter and there was also hay cut between there and the river in the summer of '81.

Q. This flooded condition in 1881 remained not to exceed how long?

A. Fifteen days.

Q. And was in the spring?

A. It was very high in the spring.

Q. And was not recurrent during that season?

A. No sir.

375 Q. You may state whether or not the season of '81 is or is not known as one of the highest conditions of flood the Red River Valley has known?

A. It is one of the highest.

Q. Is the year 1881 referred to in the Red River Valley as the high flood period?

A. I think so.

Q. To what was the high flood of 1881 attributed as you observed it?

A. Attributed to the deep snows and bloc-ade of ice.

Q. Bloc-ade of ice where?

A. In the river north and the stream backing up.

Q. Where did that blockade occur?

A. I don't just know that, but they claimed the river was bloc-aded farther north with ice.

Q. Were you there in the year 1897?

A. I was.

Q. Have a recollection of the conditions that existed during the winter of 1896 as to snow fall?

A. Very heavy snow fall.

Q. How did it compare with 1881?

A. Not quite as heavy.

Q. What were the conditions in the Spring of 1897?
A. Water was very high. The river was out of its banks and we had very high water.
Q. About how long did this last?
A. I remember that year a Mr. Avery was on my farm. I was living in town at the time, and I think fifteen days later he began to see- that lower quarter, and seeded the entire quarter to wheat.
Q. Where is that quarter?
A. That is on the east side, the West half of the West half of 4.
Q. That is a portion of your place that Mr. Avery worked?
A. He worked the entire farm.
Q. In the year 1897?
A. He did.
Q. Now were some of these lands of yours in 1897 overflooded by water?
A. Yes, the east quarter, the West half of the West half of 4 was nearly covered with water, not entirely but nearly.
376 Q. And what would you say about when this land was seeded?
A. Seeded the latter part of April or the fore part of May. I think all seeded to wheat before the 5th day of May.
Q. Was there a crop raised that year?
A. There was.
Q. And how about the other crops raised along the Bois de Sioux River or in that vicinity in North Dakota?
A. There was grain raised all around there in that vicinity that year.
Q. Over that territory that was being put in?
A. No trouble, to get the crop in. Of course the crop wasn't put in quite as early as it would have been if the water hadn't been there, but they got the crop in in fairly good season.
Q. And what were the crop returns, generally speaking for that year?
A. About three-fourth- of a normal crop. I remember we thrashed thirteen and a half bushels to the acre.
Q. Are the years 1881 and 1897 high water mark as far as flood conditions are concerned of the Bois de Sioux river up to the year 1915?
A. Yes.
Q. Those are the most unusual in your experience in the thirty-seven years you have been there up to the year 1915
A. Yes sir.
Q. Now generally speaking, you may state the nature and character of the soil as to its fertility and productivity in this Red River valley adjacent to the Bois de Sioux in Richland county, North Dakota?
A. Why, it is a good fertile soil, as rich as any soils I think in the state anywhere.
Q. Capable of raising wheat crops, cereal crops?
A. Yes, sir.
Q. And corn?
A. Yes sir.
Q. And how does your land for instance, and other lands north

and south of you within this yellow shaded territory compare with lands in the western part of Richland county?

377 A. They are better lands than lands in the western part of Richland county.

Q. How do you mean better?

A. I mean they are more fertile.

Q. What constitutes fertility?

A. Good, rich, black loam where you can raise more vegetation, a greater growth of vegetation.

Q. Now what is the trading town of this territory situated and adjacent to the Bois de Sioux, generally speaking?

A. Fairmount.

Q. Fairmount has how many railroads that run in there?

A. It is supposed to have four at the present time.

Q. Now were you in this territory in 1915, the spring of 1915?

A. I was.

Q. What were the flood conditions existing in the spring of 1915, if any. First, what were crop conditions in the spring of 1915?

A. Looked good. We had the seeding done in nice shape.

Q. What seeding and sowing was done there that spring as you observed it in this territory involved?

A. All kinds of grains were sown, corn planted and everything of that kind.

Q. Generally under state of cultivation?

A. Yes, sir.

Q. In 1915, if I get the status correctly in this territory involved within the yellow shaded lines in North Dakota there was about eighty per cent of this land broken up and cropped?

A. Just about.

Q. And as to the twenty per cent that would be used for what purposes in 1915?

A. Usually a wild hay crop on that other twenty per cent.

Q. Now in 1915 this per cent of the lands broken up were in crop?

A. Yes, sir.

Q. And you observed the high water conditions there that year?

A. I did.

Q. Describe those briefly, please?

378 A. The water came creeping up into our grain along the last of June or fore-part of July. It didn't get into our grain upon my quarter until the oats were headed out. We didn't happen to have any barley sown that year but we had some very fine oats and they were all headed. The first I knew of it my son came up says, "Pa, the water is creeping up into our big oats." I went down there soon afterwards and I found it to be true, and we kept thinking it wouldn't get any higher, but it gradually got higher until it got the entire piece except ten acres and that we cut to get the grain ahead of the water. It was cut green. It was along the latter part of July, you understand, that we cut these oats to get them ahead of the water. Then we had twelve acres of hay we couldn't cut. We also had twenty acres of corn we couldn't cultivate—that is late—we had cultivated it early before the water came up. We also had some of our wheat that the water got into that we couldn't cut, but we

didn't lose as much wheat as oats. The wheat is in the north end where the land is a little higher.

Q. How did those conditions continue?

A. The water laid there.

Q. Were you able to do anything with the crop?

A. Couldn't do anything with it.

Q. What did become of it?

A. The ducks got most of it. It made a nice duck bed for the sportsmen to come down and hunt in.

Q. Did that continue until fall?

A. It did. Well, late in the fall the water receded a little.

Q. In what shape were these other lands within this shaded portion, generally speaking?

A. They was covered with water.

Q. Same condition prevailed as you have mentioned with reference to your own farm?

A. Of course there might be a little of this shaded area that the water didn't get up on to, but very little but what was covered with water.

Q. In 1915?

A. In 1915.

Q. Did you make any observation as to whether they harvested or could harvest these crops that year?

379 A. I know they couldn't.

Q. And didn't harvest them?

A. No, they didn't.

Q. And where did these waters come from?

A. From the south.

Q. And the current flowed north?

A. Yes sir.

Q. Crept up gradually from the Bois de Sioux river?

A. Yes, sir.

Q. Did you make any observation as to how deep the water overspread your land in any one place?

A. I think the water in the southeast corner of my land was probably two or two and a half feet deep.

Q. What shape was the land then in the fall of 1915?

A. Well, it was covered with water, or nearly covered with water, of course the water as I said had receded somewhat before it froze up.

Q. Were you able to plow your lands?

A. No sir.

Q. What condition were the lands in in 1916?

Mr. Palmer: What land do you refer to?

A. I am talking about the West half of the West half of 4.

Mr. Palmer: And not the land in Section 5?

A. No sir.

Q. How about your land in Section 5 in 1915, did you get a crop on that?

A. I did.

Q. What kind of a crop?

A. I got an excellent crop of wheat. That was most all sowed to wheat.

Q. How did it turn out?

A. Went about twenty-four bushels to the acre.

Q. What quality?

A. No. 1 Northern—No. 1 grade.

Q. Were you able to conduct your usual fall farming operations in Section 5 that fall?

A. We were. No trouble at all.

380 Q. What were the conditions in the spring of 1916 as far as Section 4 was concerned?

A. Couldn't do anything with it.

Q. Why?

A. It was too wet.

Q. On account of these flood conditions?

A. Yes sir.

Q. How did they continue?

A. Water continued there all summer.

Q. Have another flood in the year 1916?

A. We did.

Q. Where did the waters come from?

A. From the south, some of them. Of course early in the spring the water was caused from the snow but later on it came from the south.

Q. That is when the winter snows and spring rains came you had some waters like you usually have in the spring, but those passed away?

A. Well, I won't say entirely, that they passed away entirely in 1916, but at the same time the water receded a little, and then later on came up again.

Q. When they came up about what time in the year 1916 was that?

A. Oh, that would be in May or June. I don't know. It was high all the while there.

Q. How high did they get compared with the year 1915?

A. Well, they were higher than in 1915.

Q. Overspread some of your land in 1916?

A. Yes sir.

Q. More than in 1915?

A. Just a little more.

Q. About how much more?

A. Well, that east quarter was almost entirely covered in 1916 and we were able to harvest probably sixty acres on that in 1915.

Q. And this condition of high water continued how long in 1916?

A. All summer.

Q. What shape was the land in in the fall of 1916?

A. So wet we couldn't do anything with it.

381 Q. On account of the high water?

A. Yes sir.

Q. What shape was the land on Section 5 in?

A. We plowed all that in 1916 and had it ready for crop for the next year.

Q. Did you take a crop off Section 5 that year?

A. Yes sir.

Q. What was the crop, about?

A. You mean 1916?

Q. Yes sir.

A. Well, we got about five bishels of wheat and perhaps eight or ten bushels of barley.

Q. To the acre?

A. Yes sir, and I guess about ten bushel of oats.

Q. Corn?

A. Didn't have any.

Q. Was this a rust year?

A. Yes sir, there was some rust.

Q. Did you make some observations on the conditions of the flood as affecting other lands in this yellow shaded territory?

A. I did.

Q. What was the condition of the lands in this territory in the spring of 1917?

A. Pretty wet. So wet we were unable to sow but very little on the east quarter—that is the West half of the West half of Section 4.

Q. What conditions did you observe generally through this territory in the Spring of 1917?

A. Awful wet, people couldn't sow their lands to crop in seasonable condition.

Q. What were conditions with reference to Section 5 in 1917?

A. That was all sowed to crop, no trouble at all.

Q. What crops have been put in on this yellow shaded territory this year as you have observed?

A. Scarcely any.

Q. By reason of what?

A. By reason of the high water in the spring.

Q. Of 1916?

382 A. Yes sir.

Q. And in the summer of 1916?

A. Yes sir.

Q. And what was the condition of this territory in the spring of 1917 and up to the present time—this yellow shaded territory, designated on the map?

A. Well, it looks tough to ride down through there. It is grown up to cat-tails and noxious weeds. My east quarter I have expended a lot of money on to remove the cockle-burrs that floated in there for somewhere. Mine looks pretty good at present because on the east side I have had my tractor in there turning it over. It is summer fallowed except that was put into corn. I gave the neighbor some of it for corn ground.

Q. Were you down there to White Rock during the summer of 1916, during the highwater period of 1915?

A. I was there in 1915.

Q. Did you observe the high water there?
A. Yes.
Q. Around the town?
A. Yes.
Q. And up in the streets?
A. Well not right on main street. But it came almost up to the sidewalks. You would walk down the walks on main street and see it come up between the stores and around the dwelling houses.
Q. Were you down to Wheaton in the summer of 1916?
A. I was not.
Q. You haven't been to Wheaton at all during these two years?
A. I was there in the fall of 1914 to the Fair.
Q. In the fall of 1914 did you observe some waters starting to rise in the Bois de Sioux river to the south of you?
A. I did.
Q. Coming up how?
A. Gradually creeping up, coming from the south.
Q. And during the summer you may state whether or not—was the fall of 1914 a dry or wet fall in your vicinity?
383 A. A dry fall.
Q. What do you mean by that?
A. I know the roads were dry all the while. The ground was dry, one of the driest falls we have ever had to plow. Not the driest, but one of the driest.
Q. Make any observations of the Bois de Sioux river in and about, or inquiries near your farm up there as to whether it was dry or how much water was in it?
A. I know at haying time, we put up some hay there and we put up our hay on the banks of the river and there was scarcely any water there in haying time. That was in July, understand, and along the latter part of September, if I remember right, the water came up so we couldn't get *out* hay stacks off until it froze up.
Q. That is towards the southern part of this territory?
A. It is right east of this Section 4, east of my farm. Just in east of this Caruther's place on Section 9. That water came up there so we couldn't get within a hundred rods of those hay stacks until it froze up.
Q. In the fall of 1914?
A. Yes sir.
Q. And this was a dry fall?
A. Yes sir.
Q. Now what time was the Fair at Wheaton?
A. Well, now I don't just remember.
Q. In the fall or spring?
A. Fall, but just what the dates are I couldn't remember.
Q. Did you observe any of the ditching conditions when you were there?
A. I know we crossed the Mustinka river there somewhere. We went down with an auto and I think we saw the dredge there. I know I saw that dredge standing there in the river idle at the time, but I didn't notice anything uncommon in the ditch conditions there

at that time. We went through a flying and came back the same way.

Q. During all the years you have lived there, some thirty-seven years, have you ever seen conditions of flood similar to these in the years 1915 and 1916?

A. I have not.

Q. Have you ever seen farms grown up to cat-tails and other noxious weeds as you have stated—these farms?

A. No, I have not.

384 Cross-examination.

By Mr. Palmer:

Q. In 1880 how many settlers do you think there were upon this area respresented by this yellow shading on the map?

A. I don't think there were many.

Q. Can you answer that question any more definitely than that?

A. No, I cannot.

Q. Well, can you give anywheres near the number? Twenty might not be many and five might not be many. It doesn't make the record very difinite.

A. From what points do you mean?

Q. I mean on the shaded area?

A. Well, that runs quite a distance. You mean from Lake Traverse?

Q. I mean from the state line north?

A. In the Spring of 1880, I believe I was the only party that was located from the state line north to the Rabbit river, although I am not certain of that, understand.

Q. Your recollection is that none of these lands were homesteaded at that time?

A. No, I don't remember to a certainty of any of them being filed upon at that time.

Q. And the quarter on which you settled and proved up was outside of the shaded area?

A. Except once in a while a slough leading up there, in high water once in a while the water would come acrossed the road on the other quarter. I don't think it appears in this shaded area.

Q. How long after your settlement there before the homesteaders began to come in and settle upon this area?

A. Not a great while.

Q. Could you make any more definite answer than that?

A. It is pretty hard to remember back that number of years just as to the dates when this land was taken, but I believe that land was nearly all filed upon before the year 1890.

Q. But as to actual settlement?

A. Well, there was actual settlers in there on some of that land before 1890, I am certain.

Q. How as to the lands immediately west of this shaded area?

385 A. These lands were all taken—I think they were all filed upon before the year 1884 or '85?

Q. And I apprehend that the homesteading or taking up of these lands in the yellow shaded area here was running along until toward 1895 or '96?

A. Oh, no, not that late. I don't think so. I don't think there was a particle of land left there open for homestead in 1890, and I don't believe there was very much left in the year 1886 or '87.

Q. Do you recollect as to the southern portion of this shaded area,—Section 34—who homesteaded that?

A. I couldn't tell you that.

Q. You don't know.

A. No.

Q. Is that owned now by a resident or non-resident?

A. That I don't know, but I can remember of people coming in there in the early days and looking for land, if I remember right, along in '85 and '86 and there wasn't any land open for settlement.

Q. How long did you live on your land?

A. I have resided there myself twenty years at different times.

Q. The first time?

A. I lived there until the fall of 1895, then I leased it for three years, then I went back and stayed five years, then I leased it two more years and since that time my son has been there about twelve years.

Q. You call to mind the homesteaders as they came along there?

A. A great many of them, yes, sir, not all of them.

Q. You gradually became acquainted with them as they came in?

A. Yes sir.

Q. Are there any of them there now at all?

A. Yes sir.

Q. Who?

A. Mr. T. P. Williams is there.

Q. What section is he on?

A. It seems to me Mr. T. P. Williams is on—he is not in this shaded area. He has a little land that runs down there, but he is not living there.

386 Q. I am asking you now about the original homesteaders who came there and settled upon these lands in the shaded area. Are there any of them there now?

A. Well, I don't know as I can call to mind, but I remember of being acquainted with one or two that lived east of Blackmere, but I think they have moved away at the present time.

Q. So that so far as you can now recollect, Mr. Taylor, there isn't a single one of the original homesteaders on this shaded area living there now?

A. From the state line north to the Rabbit river?

Q. Yes sir. When I say shaded area I mean North Dakota.

A. [illegible]r, I don't think there is any living there now.

Q. How many of those original homesteaders to the best of your recollection still own the lands on which they settled?

A. I don't know of any except myself.

Mr. Brouson: Most of them dead?

A. Most of them moved away.

By Mr. Palmer:

Q. How long after they came there and settled, generally speaking before they got out of there?

A. Some of them lived there a good while. The time of the big land boom a great many sold out. Lots of land changed hands there.

Q. When was the big land boom on so that they had a chance to sell out?

A. I can't just recall the years, but there was several years when the land boom was on, and people were selling out every day.

Q. About what time was that?

A. I don't know what date. I can't remember that.

Q. Was it some time before or after the——

A. I presume the biggest land boom was on along in 1903 and 1904, along there somewhere. I have just forgotten.

Q. When the big land boom came and they had a chance to sell out most of them sold out and went away?

A. Lots of them sold both in that area and outside of that.

Q. And generally speaking how many times have these lands in this shaded area changed hands, changed ownership?

387 A. I don't know that.

Q. As compared with the ordinary farm lands outside of the shaded area?

A. I don't think any more often.

Q. Isn't it true, Mr. Taylor, that these lands have on an average changed hands, changed ownership every three to five or seven years since they were settled?

A. Well, it wouldn't be anything strange to me if they had because we have a piece of land east of Fairmount that——

Q. Well, we don't care about that. You don't need to argue the matter. You say it wouldn't be strange to you if they did?

A. No.

Q. Isn't it true that a great many of these pieces of land have had mortgages foreclosed on them?

A. I wouldn't be surprised. Most of the lands in the state have, or a good many of them.

Q. And isn't it true that at the present time more than fifty per cent of those lands are owned by non-residents?

A. That I don't know. I am not prepared to answer that question.

Q. Well take the land around yours there, Mr. Krutzelman?

A. I don't know any such name.

Q. Mr. Briden?

A. I don't know him.

Q. He owns the land in 32. Is he there?

A. I don't know him.

Q. Mr. A. Waddington?

A. I know a Mr. Waddington. I don't know what his initials are.
Q. Does one of the Waddingtons live there?
A. Yes sir.
Q. Do you know his first name?
A. No.
Q. Mr. L. D. Buttz—he live there?
A. I don't know him.
Q. Mr. J. Strauss?
A. I don't know him.
388 Q. Mr. J. A. Swanson? Does he live there?
A. I don't think he does, no.
Q. Mr. Fritz Quidding. He live there?
A. He doesn't now. I think the water drove him out.
Q. What year did he leave?
A. I think the water drove him out.
Q. What year did he go?
A. I think he went in the fall of 1915, if I remember right.
Q. Orby W. Jones—know him?
A. No.
Q. O. C. Andrews? Know him?
A. Yes sir.
Q. Where does he live?
A. Right there by Fairmount.
Q. On this land?
A. Not on that same land that he occupied in 1915, no.
Q. Mr. B. B. Martin?
A. There is a Martin lives there — to Blackmere.
Q. Mr. Riddell?
A. Yes sir.
Q. Does he live there?
A. In White Rock, I think.
Q. He doesn't live in North Dakota?
A. No, I guess not, but I have seen him up there at the farm.
Q. Mr. N. H. Powell, does he live in North Dakota?
A. No.
Q. Mr. Earl Burgess?
A. I guess he lives in Illinois.
Q. Mr. J. Nagel? He live there?
A. I don't think so.
Q. Mr. O. O. Swivel, he live there?
A. No, I guess not.
389 Q. Mr. J. C. Hudelbrink?
A. Yes sir.
Q. Where does he live?
A. North of my farm about a mile.
Q. Mr. Dawe, R. A.—does he live there?
A. Used to live in Fairmount. He doesn't live there now.
Q. Where does he live?
A. I think in Minnesota.
Q. Not on this land?

A. No sir, he never did. There ain't room for him there hardly. He has only got sixteen acres or something like that.

Q. There isn't room for the ordinary North Dakota resident to live on sixteen acres?

A. No sir, not and farm it.

Q. How much have you got in the town of Fairmount?

A. Probably half an acre.

Q. Mr. Charles A. Tuttle—where does he live?

A. I think here in St. Paul.

Q. L. W. Dougherty?

A. In the village of Fairmount.

Q. Mr. W. M. Growe?

A. I think he lives in Hankinson.

Q. Mr. J. E. Ennes? Where does he live. Do you know him?

A. No.

Q. You don't know him?

A. No.

Q. Or where he lives?

A. No sir.

Q. Jessie V. Griener?

A. No.

Q. Acquainted with the lady?

A. No sir.

Q. Simon J. Strauss?

A. No.

390 Q. Know anything about him?

A. No.

Q. Mr. H. E. Crandall—you know him or where he lives?

A. I have understood he lived in St. Paul. I am not certain of that. I have met the gentleman.

Q. He don't live out there on the land?

A. No, he is one of a land firm. It is not supposed that he would.

Q. He is a land man, is he?

A. He certainly is.

Q. Good deal of this land owned by real estate men who live outside of the state of North Dakota?

A. I presume there is some of it. I don't know how much. I haven't been in the real estate business and I haven't kept in touch with that part of it.

Q. Now, these seem to be the owners of this land according to the assessment rolls of your county, Mr. Taylor, so generally speaking, you would say that the lands are owned by non-residents?

A. Not entirely.

Q. Well, more than half?

A. I presume more than half, yes.

Q. And if they are occupied at all they are occupied by tenants—tenant farms?

A. Well, in some cases, yes, not all the lands.

Q. Well, that is, more than fifty per cent of that is owned by non-residents, if it is occupied at all, is occupied by tenants?

A. I don't know whether there is fifty per cent in that area that

is owned by non-residents. You haven't said anything about Mr. Geier, my neighbor that lives there and owns six or seven hundred acres. He lives on the north of me. Mr. Kurtz lives north of me and operates a farm and has for several years, and Mr. Pinkney also owns a farm and lives there and——

Q. Well, according to your best knowledge of that vicinity, would you say that there was fifty per cent of this land that was occupied as tenant farms?

A. I don't think so.

Q. Well, who does occupy this land owned by non-residents?

391 A. Well, probably tenants, if anyone. If they were owned by non-residents they couldn't live there themselves if they were non-residents, but some of the large farms where the owners live there you didn't mention, so I don't believe that half of these lands are owned by non-residents. Now I am not certain of it as I said before.

Q. Now you think these lands are just as valuable as the lands immediately west of them?

A. If it wasn't for the flood menace, yes.

Q. It it wasn't for the years 1915 and 1916 these lands would be just as valuable as the land to the west of them?

A. Yes, sir.

Q. And lying immediately west of them?

A. Yes sir.

Q. Now take Section 32, down on the state line—do you know the character of that land?

A. That borders on the—it is pretty hard for me to remember the locality of these descriptions.

Q. Well, take the state line—big swamp on that?

A. Well, land that there is a big swamp on is not worth as much, of course not.

Q. Big swamp on that?

A. I don't remember.

Q. Lot of stone on it?

A. There may be some.

Q. Take Section 33 as you follow the road north from White Rock—that would be on the west side—is that a valuable piece of land?

A. That must be the Baker place. No sire, it is not a real valuable piece of land.

Q. Lots of rock on it?

A. No, I don't think very many. There is a few in a pasture where there is a slough.

Q. Now take the land in 34, which would be to your right hand as you go north over that road that leads directly out of White Rock?

A. The Lundberg farm.

Q. Yes.

A. That used to be a pretty good farm.

392 Q. Any rock on that?

A. Used to be some.

Q. What kind of buildings on it?

A. Pretty fair buildings, if that is the Lundberg farm, understand.

Q. Now going north along that road, what is the next farm you come to on the east side next to the river?

A. I don't know.

Q. Any buildings on that?

A. I couldn't swear to that.

Q. Any rock on it?

A. I don't think there is many.

Q. And west of the road after you cross the railroad in 28, good farm there?

A. I think that is pretty fair land.

Q. Good buildings?

A. I don't know whether there is any or not. As I said, I am not familiar always with the sections.

Q. Well, then continuing north into 21, on the Anderson land—good buildings and good land?

A. There is two of those quarters pretty good.

Q. What are they good for?

A. Used to be considered good.

Q. What for?

A. To raise grain on.

Q. When did Mr. Anderson move away from there?

A. I don't remember.

Q. It was before 1915, wasn't it?

A. I think so.

Q. Lost the land on a mortgage?

A. Possibly.

Q. The place ever been occupied since?

A. I don't know I think it has.

Q. What is the character of those buildings?

A. If I remember right those were fair buildings at one
393 time. There is one of those set of buildings that was all built of stone. We called it the stone house, but I don't remember whether that was Anderson's house or another set of buildings.

Q. Where did they get the s-one they built that house of?

A. I think they picked them.

Q. From the land?

A. On the Blackmere farm, a good many of them.

Q. Where is that?

A. Right near Blackmere.

Q. Right in this Section?

A. No, I don't think it is in that section.

Q. Well, is it in the next section west—20?

A. It is in 20.

Q. Lots of rock on that?

A. Yes, on the east half of that section.

Q. Now there is another farm a little north on 21 with some buildings on it?

A. Yes.

Q. Those are good buildings?
A. Well, they are not what you would call large buildings, but there were pretty good.
Q. How long since anybody lived there?
A. I think that is what they term Ole Julene place, and I don't know whether any one lived there just recently or not.
Q. Anybody lived there up to 1915?
A. I don't think Ole did himself.
Q. When did Ole get out?
A. I didn't have occasion to visit all those places. I have been through there hunting and visited those places in the early days as assessor, but I have not been through there every year, not to the buildings any was.
Q. Lots of rock on that Julene place?
A. Not very many.
Q. Do you think anybody lived on that farm up to 1915?
A. I don't know.
394 Q. Now continuing north——
A. I believe there were when I came to think about it. I was working the road in 1914 and I think there was somebody lived there at that time.
Q. Was he a tenant?
A. I don't know that. I presume so. Might have been an owner. I don't know that.
Q. Now continuing north to Section 16, any buildings on that quarter?
A. Some buildings there of Mr. Broderick's.
Q. Where are those?
A. Down on the southside of the section.
Q. Any buildings on the northeast portion next to the river?
A. No, I don't think so.
Q. What is that land used for?
A. Mostly for hay.
Q. Any cultivated land at all on Section 16?
A. Yes sir.
Q. Where is that?
A. On the west side.
Q. And on the east side that is the land that is used for hay is it?
A. Yes sir.
Q. And they cut hay there this year, 1917?
A. I haven't observed cery closely, but I guess there is a little hay cut there.
Q. You haven't observed this land very closely lately?
A. No- this year, no sir.
Q. So so far as you know——
A. Why, I was doen by there the forepart of the season but you couldn't cut any hay then. Possibly of late there has been some hay cut there.
Q. So far as you know it may be all cut?
A. No, I don't think so.
Q. Well, how do you know if you don't know anything about it?

A. Just as I have heard. And I haven't seen many hay stacks looming up, but you can see from my place if they are there.

Q. There are not ma-y down in through there?

A. Not very many this year.

395 Q. Have you seen any there at all?

A. Yes sir.

Q. How many do you think there are?

A. I presume there may be twenty.

Q. Well now take it in through there generally at this time how many stacks of hay do you think there are?

A. As a rule before 1915——

Q. No, I mean now, right at this time or within the last two weeks?

A. How many hay stakes do I suppose there are?

Q. According to your best judgment?

A. I would presume there might be twenty.

Q. You don't believe there is over twenty?

A. I don't think so.

Q. Isn't it nearer fifty?

A. I wouldn't swear that there wasn't because I am not certain.

Q. Any land in that area that was ever used for hay has been cut for hay this year?

A. No sir.

Q. What part of it that was used for hay formerly has not been cut this year.

A. Not one-quarter of it.

Q. Now when were you down there last over that territory?

A. I have been down through there not long ago.

Q. I asked you when?

A. Well, I don't know just when. I guess it has been perhaps thirty days.

Q. And you don't know how much hay is cut there now?

A. No there isn't hay stacks very many places if *h*tere is any there. And I have been down on the grade between my place and the place south and that is not far—it is only one mile from Section 16 and I could see it and I know the land is destroyed for hay.

Q. Totally destroued?

A. A great deal of it.

396 Q. Never can be cut for hay again while the world stands?

A. Some, if the water keeps down.

Q. Any water this year?

A. None now. We haven't had any rain—nothing to make water.

Q. Well, you think you had water in 1915 without any rain?

A. We did, no, not without any rain. We had rain of course.

Q. Then the water you had in 1915 came from the rain, did it?

A. No sir, not all of it, not by any means.

Q. Didn't come from the rain?

A. No sir, it came from the south, from Lake Traverse.

Q. Came from Traverse Lake?

A. Must have, because it came from the south.

A. Yes sir.
Q. But the lands were not flooded?
A. Some of them, yes.
Q. Something unusual?
A. Didn't bother me on my farm,—something unusual at that time of year.
398 Q. Now in the spring of 1915 was there any water there?
A. Water in the river, but the water wasn't high.
Q. No unusual amount of water coming from the south in the spring of 1915?
A. No unusual amount, no.
Q. Now, you say that in 1881 the water was as high as it was in 1916?
A. Just about, I think.
Q. That year you had the greatest amount of precipitation on record in the matter of snow fall?
A. You mean in the winter of '80 and '81?
Q. Yes.
A. Very likely. I think it was.
Q. I understood that is what you said.
A. Yes, I think it is the deepest snow I ever witnessed.
Q. And in 1916 you had the greatest amount of rainfall you ever experienced in that vicinity?
A. Well, we had as much.
Q. And you think more?
A. Well, I wouldn't be surprised if it was a little more, but I don't know that we had more.
Q. Now you say there were floods in the whole Red River valley in the Spring of 1881, as you recollect it?
A. Yes sir.
Q. And there was an equal amount of flooding in the Red River Valley in the year 1916?
A. I presume about the same. In our locality the water reached about the same height?
Q. And is it your opinion that all along the Red River valley, notably at Fargo and Moorhead and those playes they had high oods. The same as they did in 1881?
A. I think so, yet I wasn't at Fargo or Grand Forks or any of those places, but I presume so.
399 Q. Well, you heard about the high floods at those points?
A. Yes sir. It is natural to presume they had high water there.
Q. Now do I understand you to say that you have personal knowledge that in 1916 there was no flooding of lands along the Bois de Sioux from the confluence of the Rabbit river north to Wahpeton?
A. Well, I am not acquainted with the lands along there at all seasons of the year and at all times, but I don't believe those lands were very badly flooded in 1916.
Q. You know where the Wild Rice river is?
A. Yes sir.
Q. Now do you know anything about whether in the spring of

Q. Well you don't think Lake Traverse created it?
A. Well, I think perhaps some ditches that led into it from the Mustinka river created the rise in the lake.
Q. It was water that created the rise?
A. Must have been.
Q. And the water must have come from rain?
A. Or from snow.
Q. There is no water there now on this shaded area?
A. Might be in some places. I haven't been over every foot of it, but there is not much water there.
Q. And the reason there is no water there is because you haven't had rain?
A. We have had a very dry year. It has dried up everything.
Q. And it has always been true that when you didn't have rain you didn't have water?
A. Sometimes we had had water without much rain.
Q. Why is it in 1917 you don't have water when you didn't have rain?
A. Probably because we have had the least rainfall in the history of the state in our community and it couldn't help but dry things up.
Q. Now in 1916 you had lots of water there?
A. Certainly did.
397 Q. And in 1916 you had the most rain you ever had in the history of that locality there, did you not?
A. I think we had as much probably and a little more.
Q. And in the year 1915 you had considerable rain?
A. We had just rain enough to grow a nice crop.
Q. In the fall of 1915 you had a good deal of rain?
A. Yes, we had plenty of rain.
Q. Well, you had enough so the land was wet?
A. Well, the land was moist, yes.
Q. You didn't have any water coming up from the south there in the summer of 1914, did you?
A. In the fall of 1914 we did.
Q. You didn't have any water coming up from the south there in the summer of 1914, did you?
A. What do you term the summer months.
Q. Will you answer the question?

Mr. Bronson: I object to it as the witness has already answered.

A. Not until the month of September.
Q. The latter part of September?
A. Yes.
Q. Then in May and June 1914 you observed no unusual amount of water coming from the south?
A. No, I didn't.
Q. Nor did you in the spring of 1914?
A. No.
Q. Nor did you in the fall of 1914?
A. Yes, in the fall, I did.
Q. In the fall of 1914 you saw some water there?

1916 or the summer of 1916 the waters from the Bois de Sioux overflooded in south of Wahpeton and flooded over into the Wild Rice river and flooded the lands intervening?

A. I don't think they did.

Q. Do you know anything about it?

A. I am quite certain that they didn't.

Q. The farmers who live up along there might know something about it?

A. Yes.

Q. And they would know more about it than you would?

A. Yes sir.

Q. You haven't talked with any of them?

A. No sir.

Q. Do you know the town called Wild Rice up in south of Fargo?

A. Well, I have been through there.

Q. Was that flooded in 1916 and destroyed?

A. I don't know.

Q. You didn't hear about that?

A. No sir.

Q. Now this east quarter of yours—the West half of the West half of Section 4, what was the market value of that land in 1914?

A. $75 an acre.

Q. What was it- value for assessment purposes?

A. I don't know.

400 Q. What was the assessed valuation in 1914?

A. I think they assessed that land about $6.50 or $6.00 an acre.

Q. $1.247, wasn't it?

A. In there somewhere.

Q. In 1916 what was its market value?

A. Well, I have tried awful hard to sell the entire farm for $50 an acre with $5,000 worth of buildings there and couldn't sell it. I don't know what the farm would be worth. I don't think I could sell it.

Q. You don't think it had any market value at all in 1916?

A. It ought to be worth something.

Q. What was its assessed valuation that year?

A. I don't know.

Q. About how much?

A. In 1916?

Q. Yes.

A. I think if I remember right there was seventy acres of that land that was reduced, that the County Commissioners ordered a reduction on.

Q. On that land?

A. On this land that wasn't cut, understand, where the grain wasn't cut, that couldn't be harvested in 1915. That is as I understood it.

Q. How much of a reduction was there in your taxes that year?

A. I think I paid just as much taxes as I ever did—not on that quarter possibly.

Q. On that quarter in 1914 you paid $40.78, is that right?
A. I am not certain. I was thinking it was more though.
Q. And in 1916 you paid taxes of $48?
A. Hold on there, I thought you were talking about 1916.
Q. In 1914 you paid $40.78?
A. Yes sir.
Q. And in 1916, $48.14?
A. Yes sir.
Q. And the assessed valuation in 1914 was $1,247 and in 1916——
A. Taxes have doubled all over the state.
401 Q. Have the assessed valuation doubled all over the state?
A. No, they have had an awful rise. I paid on the other quarter $88 where I used to pay $50.
Q. Do you know how it was that the assessed valuation on your land in Section 4 was practically the same in 1916 as it was in 1914?
A. As raised by the state.
Q. Yes sir, I have it from the state. There is where it comes from?
A. They may have raised it seventy-five or eighty per cent. The assessor may have cut down that assessment when he took the assessment and yet it might have been raised by the state and brings it up again.
Q. In other words the state doesn't appear to have lost any money on the reduction, at least so far as your land is concerned?

Mr. Bronson: Objected to as calling for a conclussion, not within the knowledge of the witness, argumentative.

A. How would I know anything about it.
Q. Well the state got $40 taxes in 1914 and $48 in 1916?

Mr. Bronson: Objected to as an improper statement, and no such apportionment to the state in such years. The law specifically says what apportionment goes to the state.
Q. Well, somebody got it—you paid it?
A. We might have had a greater school tax or something of that kind. We might have paid more mills on the dollar of school tax. I am not prepared to answer all those questions.
Q. The assessed valuation of your land then in that vicinity has no reference whatever to the market value of it?
A. I don't think so.
Q. Now in 1917 do you recollect what the valuation for assessment purposes was on that quarter?
A. The assessor didn't come to me when he made the assessment. I have always thought he ought to have done that, but he didn't. Particular frient of mine too.
Q. What good would it have done for him to come to you?
A. Well, I like to know——
402 Q. Well, you mean you would like to tell him that the land wasn't worth as much as before?

A. That wouldn't do any good. We have so many taxes to raise in the township anyway.

Q. And they raise them off this land?

A. No, not entirely so.

Q. Now this land in Section 4 of yours, you say the main river is about how far?

A. Three-quarters of a mile east.

Q. Is there a ravine that runs up through your land?

A. Yes sir.

Q. From north to south?

A. No, from east to west.

Q. Where does that come from?

A. It comes from the west.

Q. From the west?

A. There is a fall from the west, yes.

Q. What made that ravine there?

A. I don't know. Maybe God Almighty did, I don't know.

Q. And the Creator I suppose made it for water to run in?

A. Yes sir.

Q. And water does run in it?

A. Yes sir.

Q. And runs on to your land from it?

A. Runs through my land.

Q. Well, did the Creator make any other ravines running into this Bois de Sioux valley from the west?

A. Yes sir.

Q. For water to run in and water does run in them?

A. I guess it does.

Q. And the water doesn't all come from the south, from Lake Traverse, Mr. Taylor?

A. No, I don't think so.

Q. Mr. Taylor, are you one of the parties testified to by Mr. Charles R. Pinkney as having contributed to the expense of carrying on this suit in behalf of the complainant?

403 A. Yes sir.

Q. And your understanding is that if the relief prayed for in the complaint here is secured that you will get your share of the benefit of it?

A. This was more of an agitation started to get some relief, thinking perhaps that we might in time get an opening of the Red River valley and therefore relieve us from the condition we are in at the present time.

Q. So you had the state of Minnesota sued?

A. If you want me to tell you about this I can do it. We are in danger——

Q. You don't need to pay that all in the record. Did you make a direct answer to my question there?

A. I think I did.

Q. Don't you think that if the Bois de Sioux river were dredged out from the outlet of Lake Traverse northerly, especially north from its confluence with the Rabbit River that you would get relief from this flood condition?

Mr. Bronson: Objected to as calling for a conclusion of the witness, wholly incompetent, trying to make an expert of this witness, not proper cross-examination.

Q. I will add to that question—is that what you mean?
A. That is what I mean. If there was a proper dredge put in there.

Redirect examination.

By Mr. Bronson:

Q. You realized in 1915 and 1916 that the lands in the Red river valley in the territory that you have described here were subjected to unusual conditions of flood?
A. I did.
Q. More than you in fact experienced theretofore in some thirty-five years?
A. Yes sir.
Q. And the result of that condition was to render practically worthless acres and acres of valuable, fertile farm land for the raising of cereal grains?
A. Yes sir.
Q. And you, as an old resident of this Red River valley that has produced for years and years and years spring wheat of high quality and value realized with other farmers that conditions had become such that these farms were valueless unless some action were taken?
A. That is it, exactly.
404 Q. And you therefore—you had heard of the action Minnesota was taking toward dredging projects?
A. Yes sir.
Q. And you heard about the carrying of water from the Mustinka basin through the Mustinka ditch and dumping it into Lake Traverse?
A. Yes sir.
Q. And you knew Lake Traverse furnished the source of water for the Bois de Sioux to carry off?
A. Yes sir.
Q. And did you at that time also realize that if these conditions which obtained upon the Bois de Sioux, the taking care of surplus waters which might come from Minnesota by reason of its dredging projects and otherwise continued it would render valueless your farms in the Red River valley?
A. Yes sir.
Q. And with a view to remedying this condition did you and some other farmers *constul* together and take steps to see if this condition could be alleviated?
A. We did.
Q. And to the state of North Dakota have you contributed any sum of money?
A. I have.
Q. As a separate fund for the purposes of——

A. I don't know as to the state of North Dakota. I will be careful how I answer that. I have contributed some money.

Q. For the purposes you have just mentioned?

A. Yes sir.

Q. And if recovery should be secured in this action in any way whatsoever which would serve to remedy these conditions you would naturally benefit from it?

A. I certainly would.

Q. You may state whether or not if the flood conditions of 1915 and 1916 should be continued what would be the value of your farm for farming purposes?

A. It would be worthless.

405 Q. And you may state in the years that you have lived there operating a farm what you have put in the way of improvements on this farm in question?

A. Well, there is—you mean on this quarter that is in the flood area?

Q. I will add to that question—the farm including the flooded area, presuming that you have farmed all of this area that you have described as a farm?

A. Well, that means the entire farm?

Q. Yes sir.

A. Well, I have probably got $6,000 worth of improvements there. I don't think you can build them for any less money.

Q. Which you placed there prior to 1915?

A. Yes sir.

Q. These lands have been operated as one farm?

A. Yes sir.

Q. Now in the years you have lived there have you noticed any unusual conditions as far as the ownership of land is concerned, of parties coming in there and afterwards selling out or disposing of their lands any different than that which applies to the rest of Richland county?

A. No sir.

Q. Or anywhere in the state of North Dakota?

A. No sir.

Q. In other words, you may state whether from your observation made during this long course of years you have noticed any difference in the method of operation of the farms, for the fertility and productivity of these lands in this shaded area from lands in the western part of the county?

A. No difference, except in the twenty-percent that was not broken up.

Q. And are other lands in Richland county also used for hay lands?

A. There are school sections different places.

Q. And the fact that lands are used for hay lands in the Red River valley in this shaded area does not serve to distinguish the method of operation of the farms in question from the rest of the county?

A. No sir.

406 Q. Counsel asked you something about the flood conditions in the Red River valley in 1916, apparently referring to the upper Red River valley about Grand Forks of Fargo. Have you personal knowledge of that?

A. No sir.

Q. Except that you have heard someone else say?

A. Yes sir.

Q. Therefore you don't pretend to testify as to conditions there or the cause of them, if any existed?

A. No sir.

Q. Counsel asked you also something about tenant farmers on some of these lands. Are there likewise tenant farmers in the rest of Richland county?

A. Certainly, lots of them.

Q. Likewise non-residents in the rest of the county who are owners of land?

A. In all part- of it, I think.

Q. Is it any uncommon thing in the state of North Dakota for lands to be owned by non-residents?

A. No uncommon thing, no.

Q. He spoke to you about the Lundberg farm. Do you recollect whether Mr. Lundberg homesteaded that?

A. I think so.

Q. Do you know one Ed Erickson?

A. Yes sir.

Q. Do you remember whether or not he homesteaded the land where he lives?

A. I think he did.

Q. Still living on it?

A. Yes sir.

Q. Mr. Lundberg still living there?

A. Yes sir.

Q. And as to some of these men that have been mentioned who own farms in this district, a few of them live in Fairmount?

A. Yes sir.

Q. Like you do?

A. Yes sir.

407 Q. You mentioned one gentleman who lived in White Rock?

A. Yes sir.

Q. Which is just acrossed the North Dakota line into South Dakota, is it not?

A. Yes, sir, it is about a mile and a half from the state line.

408 B. W. SCHOUWEILER, having been called as a witness on behalf of the complainant was duly sworn and testified as follows:

Direct examination.

By Mr. Bronson:

Q. State your residence and age?
A. My age is 61; residence, Fairmount, North Dakota.
Q. When did you come to Fairmount, North Dakota?
A. In the fall of 1884.
Q. And have lived there ever since?
A. Yes sir.
Q. Have you owned some land in the Red River valley adjacent to Fairmount, North Dakota?
A. Yes sir.
Q. And where is that land, Mr. Schouweiler?
A. I think it is in Section 22, Township 130, Range 47—yes, the Northwest of 22.
Q. When did you first own that land?
A. I think it was in 1911 or 1912.
Q. How far is that from the town of Fairmount?
A. It is a mile east, I think.
Q. What is the population of the town of Fairmount?
A. About eight hundred.
Q. What territory is tributary to this town of Fairmount for mercantile operations?
A. I would judge about seven or eight miles, in all directions.
Q. During the time you have resided at Fairmount have you been engaged in the mercantile, banking and farming business?
A. I was engaged in the early days in the mercantile business, and farming also.
Q. You are acquainted with this territory shown on the map and designated in yellow?
A. In a general way.
Q. And with Richland county, generally speaking?
A. Yes sir.
Q. Farm lands in Richland county?
A. Yes sir.
409 Q. To what extent was the country settled in 1884 along this Red River valley adjacent to the Bois de Sioux in North Dakota?
A. I think the land was all filed on and fairly well settled.
Q. And to what extent was it improved or under cultivation?
A. The greater share of it.
Q. And how at that time did the improvements on this territory and the cultivation of it compare with the settlement, cultivation and improvements to the west of there in Richland county?
A. About the same.
Q. You observed the operation of the Bois de Sioux river during the years you have lived there up to 1915, have you not?
A. Yes.
Q. You may state generally the manner in which the territory designated under this yellow color, Exhibit 1, is subject to overflow or

flooded conditions, that is up to the year 1915 during that term of your residence in Fairmount?

A. They would overflow off and on in the spring of the year.

Q. Generally, under what climatic conditions?

A. Under heavy snow.

Q. And how long would the overflow last?

A. Eight or ten days, I should think.

Q. The river flows north and the overflow passed to the north?

A. Yes sir.

Q. During all of the years you have lived there up to 1915 have you seen farms situated in this yellow designated territory, as shown on the map, cultivated and tilled for cereal crops or for raising hay up to the year 1915?

A. Yes sir.

Q. Has there been any year during those years when you have not seen crops of cereal grains or hay being raised and produced on those premises up to the year 1915?

A. Yes they have been producing crops every year up to 1915.

Q. You know that of your knowledge?

A. Yes sir.

Q. Now in the year 1915, you may state whether or not the farms situated within this yellow designated territory mentioned
410 on the map all were put into crop in the spring, cereal crops and corn crop, in the spring of 1915?

A. Yes sir.

Q. And whether or not you observed high waters come there during the early summer of 1915, did you?

A. The water wasn't very high—I was out to California to the Exposition.

Q. They were high when you got back?

A. Yes sir.

Q. And you got back when?

A. About the 1st of August.

Q. And when you got back what condition did you observe?

A. All the crop on my quarter that year when I came back I noticed was under water, or the biggest part of it.

Q. On the land you have described?

A. Yes sir.

Q. When did you go away?

A. I left about the 10th of June and returned August 1st.

Q. And when you left the crops were in, were they?

A. Yes sir.

Q. And when you got back you noticed water standing on your fields?

A. Yes sir.

Q. And that land or the nearest portion of it is how far from Fairmount?

A. A mile.

Q. The water stood there how long?

A. Why, I can't tell, not being there.

Q. From August on—did you have it towards fall?

A. Yes, I was unable to do anything with it that year.

Q. And on this land you that year had what crop?
A. Wheat and barley, some flax, I think.
Q. How much of it was in that year?
A. The whole of it except ten acres of trees.
Q. That is the tree-claim?
A. Yes sir.

411 Q. And when you got back what could you observe, generally speaking, about the water conditions existing along this yellow designated territory on this map in North Dakota?
A. Well, I presume it was all overflowed, although I wasn't over it myself.
Q. What could you see from Fairmount?
A. Could see the water.
Q. To the north?
A. Right to the east.
Q. Water eastward and northward or eastward and southward?
A. Yes sir.
Q. What conditions were the high-ways in east of Fairmount?
A. They were impassable.
Q. And this condition continued through the fall?
A. Yes sir.
Q. And did you or did you not take off a crop that year off of that land?
A. No sir.
Q. The land plowed that fall?
A. No sir.
Q. In 1916 did you have some high water -gain?
A. Yes sir, in 1916 I disposed of my land—in the spring of 1916, in fact the land didn't belong to me the year that I raised the crop.
Q. You had sold it?
A. I had sold it, and I foreclosed for the non-payment of interest and the party was a non-resident that bought it an———
Q. And you got the land back again?
A. Yes sir.
Q. And sold it?
A. Yes sir, I sold it.
Q. What were conditions as you observed them in the year 1916 as to water and flooded conditions in this yellow designated territory?
A. The lands were all flooded more or less.
Q. This territory designated in yellow on the map?
A. Yes sir.

412 Q. Did you go across that territory that summer on the Milwaukee or otherwise?
A. Yes sir, several times.
Q. Water standing there?
A. Yes sir, on the Milwaukee track.
Q. Any water at this station called Blackmere?
A. Yes sir.
Q. About how wide was the stream there at Blackmere?

A. That is this whole area that was covered by water?
Q. Yes, designated yellow on the map?
A. In the month- of April and May? I don't know if I went through there in June or not. I remember going through there in April and as late as May.
Q. That is the southern portion of this territory?
A. Yes, from Fairmount to White Rock.
Q. Do you remember when the waters came up in 1916 on your land at Fairmount?
A. Yes, it was up on the land in 1916.
Q. When did they get high in 1916?
A. I think it was around July 1st, possibly a little later.
Q. What conditions did you notice with reference to farm buildings, whether or not there was water surrounding them as you went down on the Milwaukee railroad?
A. The majority of them were surrounded by water.
Q. You could see that from the train?
A. Yes sir.
Q. In this yellow shaded territory?
A. Yes sir.
Q. That is from Blackmere south?
A. Yes sir.
Q. Any crops harvested or threshed in this territory in 1915 or 1916?
A. In 1915 I think there was.
Q. Did you get any off you- land in 1915?
A. No, very little. A few acres right on the northwest corner of it.
Q. A little portion that was not overflooded in 1915?
A. Well, it was soft and water soaked.
413 Q. But it wasn't overflooded?
A. No, I wouldn't say it was overflowed with water, but the land became soft from the fact that the water was near it.
Q. You cut a little of it in 1915?
A. Five or six acres.
Q. In 1916 anything taken off of your land?
A. No sir, it wasn't put in.
Q. What was done with it in 1917?
A. Partly summer fallowed.
Q. What part of it?
A. It is the west eighty if I am not mistaken. Of course, I am not the owner of it at the present time.
Q. But you have observed it?
A. Yes, as I went through on the train.
Q. It is close to Fairmount?
A. Yes sir, but I haven't been down there myself.
Q. Have you observed as to conditions generally in this yellow shaded territory this year as to whether crops have been harvested or raised, or what condition the land is in?
A. Well, the land is in a very poor condition, that is as far as cultivation is concerned. It has been wet and people have been

unable to get on to it owing to the fact that it was overflooded, I presume, but there is some—here and there a spot within a half a mile or possibly closer to the river that was cultivated. That is, they got it in late in June, a little flax or a little corn fodder.

Q. That was this year?

A. Yes sir.

Q. This been a dry or wet year?

A. It has been a dry year.

Q. Were you there in 1897?

A. Yes sir.

Q. Was there some overflooding of the Bois de Sioux in 1897?

A. Yes sir.

414 Q. What were the conditions of snowfall in the winter of 1896?

A. Why we had quite a lot of snow in the winter of 1896 and '97.

Q. And what were the flood conditions in the spring of 1897 as you observed them

A. They were about the same as they were in the spring of 1916.

Q. And how long did they last?

A. Possible ten days.

Q. And the water went off?

A. The water disappeared.

Q. Any crops put in that year?

A. Yes sir.

Q. Cereal crops?

A. Yes sir.

Q. And harvested that year on these lands in the yellow designated territory?

A. Yes sir.

Q. You may state whether or not you have ever driven from Fairmount, North Dakota, to Herman, Minnesota?

A. Yes sir.

Q. Was that in the year 1901?

A. Yes, it was in 1899 or 1900, either one or the other, I think.

Q. Herman, Minnesota is south of Norcross, Minnesota?

A. Yes sir.

Q. And is in Grant county, Minnesota?

A. Yes sir.

Q. How did you drive from Fairmount to Herman?

A. In a southeasterly direction through this territory.

Q. You went across country?

A. Yes sir.

Q. And through this territory designated light blue on this map, Exhibit 1?

A. Yes sir.

Q. Now what did you notice about the condition in this territory as to lands being settled or being wild, or whether it was high or dry, or wet or low or what?

A. Well, when I left Fairmount this was in April, I would judge about seeding time, or a little before seeding. The roads and

415 fields were practically dry around Fairmount and as I got down here south of the Mustinka river in through here; I

had a party with me by the name of A. W. Morris that has a farm right near Teney, and when we got down in here south of the Mustinka river, we drove for a good many miles in there—I wouldn't say how many.

Q. In this district marked light blue on the map?

A. Yes sir.

Q. And it was unsettled?

A. No settlers in there and high grass and somewhat sloppy. The frost wasn't out of the ground. It was unsettled and quite high grass.

Q. Any farmed?

A. No sir.

Q. Buildings or no buildings?

A. No buildings. Very few, if any.

Q. And you drove into Herman?

A. Yes sir.

Q. And how about the grass or highways?

A. There were none. We went right across country in here.

Q. What highway was there existing at that time that you saw?

A. The only highway we saw was in going from Herman to Wheaton.

Q. Herman, Minnesota, to Wheaton, Minnesota?

A. Yes sir.

Q. Counsel for the defendant asked Mr. Taylor some questions concerning mortgage foreclosures on lands within this yellow shaded territory shown on the map, Exhibit 1, and I will ask you to state whether not in your term of resident- there and your business operations you had a chance to observe mortgage foreclosures in that county with reference to whether or not there was any unusual condition of mortgage foreclosures existing in this territory as compared with the other surrounding territory situated in Richland county or elsewhere about Fairmount?

A. I don't think so.

Q. State what you know about it?

A. To the best of my recollection and observation I think there wasn't any more land lost under mortgage foreclosure through that district than there was through the district west.

416 Cross-examination.

By Mr. Palmer:

Q. This land of yours is the Northwest quarter of 22-130-47?

A. Yes sir.

Q. You say you bought that in 1911 or 1912?

A. I think so.

Q. What did you pay for it?

A. I paid $5,000.

Q. When did you sell it the first time?

A. I must have sold that a year or two years later.

Q. What did you get for it?

A. $50 an acre.
Q. And it came back on your hands?
A. Yes sir.
Q. From that sale?
A. Yes sir.
Q. For the non-payment of interest?
A. I sold it to a party by the name of Tuttle——
Q. Did it come back onto your hands from that sale?
A. Yes sir.
Q. Now when was it you sold it again?
A. I sold it in the spring of 1916.
Q. That was while it was covered with water?
A. Yes sir.
Q. What did you get for it then?
A. Same price, $50 an acre. Same as I sold it the first time.
Q. That covered with water same as all the other lands in this locality in this yellow shaded area on the map?
A. I think so.
Q. You didn't get any more than it was worth, did you?
A. Why, no, I sold it to a land concern. They ought to know values.
Q. In your opinion was that a fair value per acre for the lands all through this shaded area?
417 A. This land of mine is not improved. It has no buildings on it whatever.
Q. Now do you think $50 an acre was a fair market value for the land in this shaded area in 1916, on an average?
A. I wouldn't say.
Q. Well, where they were improved they would be worth more, wouldn't they?
A. They would be worth more.
Q. And where they were not improved they would be worth about the same?
A. I presume so—that depends, there is a difference in lands?
Q. But I am speaking of lands of about that average quality through there?
A. Yes sir.

Redirect examination.

By Mr. Bronson:

Q. This land you sold was taken back by you and turned over on a deal to another party, was it not?
A. Well, I will go into the details. I bought the land for $5,000 and farmed it for about two years, and then sold it to the Land Company for $50 an acre. They in turn sold it to and Illinois party for $65 an acre. I took a second mortgage on the land. I had a first mortgage on it of $3,000 and I took the second mortgage, and the party from Illinois raised one crip there which was a bumper and then let the land go back.
Q. To the contract holder?

A. Yes, sir, and I foreclosed and under the foreclosure the Land Company stepped in and took it off my hands again, so I practically got $50 an acre.

Q. So the Land Company had this land before 1916?

A. Yes sir.

Q. And you had a mortgage on it before 1916?

A. Yes sir.

Q. And when you got it from this Illinois fellow under your mortgage it was turned back to the Land Company?

A. Yes sir.

Q. Now with conditions existing in 1915 and 1916 as you have described them with the lands flooded by water as you have described them, what is the market value of this land that you have described *with* this Land Company down there owns, under
418 those conditions and with the menace of a recurrent condition when weather permits?

Mr. Palmer: Objected to as assuming something not in the case, and the witness doesn't know and couldn't know that there will ever be a recurrence of those conditions.

A. As far as I am personally concerned I wouldn't pay any such price for the land.

Q. Mr. Schouweiler, land in this yellow designated territory that has been subjected to submergence for the years 1915 and 1916 has what market value for farming purposes?

A. None whatever.

Q. The season of 1917 has been a dry year?

A. Yes sir.

Q. Usual or unusual for the state of North Dakota?

A. Unusual.

Q. Have you witnessed in your time of residence in Fairmount, North Dakota, any drier year than the year 1917?

A. No sir.

Q. Now with a climatic condition existing somewhat similar to the years 1915 and 1916, if these lands should be over-flowed again as they were in 1915 and 1916 would these lands, the land that you formerly owned, have any market value for farming purposes?

A. No sir.

Q. And you know what market values are, do you not?

A. Yes, I have some idea.

Q. You know how you can sell land and for what purposes they are being sold by reason of your long residence there?

A. Yes sir.

Q. And you also know to what extent this land in this yellow designated territory has any market value at the present time, in a general way, do you not?

A. Yes sir.

419 J. H. BOLTON having been called as a witness on behalf of the complainants was duly sworn, and testified as follows:

Direct examination.

By Mr. Bronson:

Q. What is your age and residence?
A. My age is 39. I reside at Fairmount, Richland County, North Dakota.
Q. How long have you lived there?
A. Thirty-one years.
Q. You own some land in this territory designated and marked in yellow on the map?
A. I do.
Q. How would you describe that land?
A. I couldn't really give it to you.
Q. Tell me in what section?
A. 22, in the Northeast of 22 and some in the southwest.
Q. In Section 22, Township 130, Range 47?
A. I think so.
Q. Does it lay east of Fairmount?
A. Yes sir.
Q. How far east?
A. About a mile and a quarter.
Q. And does some of it border upon or lay adjacent to the Bois de Sioux river?
A. Yes sir.
Q. And how much frontage have you on the Bois de Sioux river?
A. I have about 160 rods.
Q. How long have you owned this land?
A. Since 1910, I think, or 1911, I am not sure.
Q. Have you farmed it during these years since you have owned it?
A. I have.
Q. What other business are you engaged in?
A. I am a barber. I have a barber shop at Fairmount.
420 Q. Do you do any threshing?
A. Yes, I have an interest in a threshing rig.
Q. When you got this land was it broken up?
A. No sir.
Q. Have you broken it up?
A. I have.
Q. When did you break it up?
A. I broke it up the year I bought it.
Q. That was 1910?
A. 1910 or '11. I am not sure.
Q. And did you raise a crop on it in the year 1910?
A. I did.
Q. What kind of a crop, flax, oats or what?
A. All flax.

Q. And what did the land produce that year?
A. Well, in dollars it produced four thousand dollars or very close to it.
Q. Can you give a general estimate of the yield per acre of flax?
A. Somewhere I think around twelve bushels.
Q. And up until the year 1915 was it cropped successively?
A. Yes sir.
Q. What sort of crops?
A. Mostly wheat, some barley one year, but outside of that wheat.
Q. The soil is of what character?
A. Black loam.
Q. Stone on it?
A. A few.
Q. All capable of cultivation?
A. Yes sir.
Q. Now during the years you have owned it have you experienced any failures up to the year 1915 upon the same?
A. No sir.
Q. Any flood conditions up to the year 1915 when you were not able to crop that land or raise crops on it?
421 A. Not since I have owned it.
Q. You recollect flood conditions back as far as 1897?
A. I do.
Q. Were you there during the winter of 1896?
A. Yes sir.
Q. What were the snow conditions?
A. The snow was very deep.
Q. What were the flood conditions as you observed them in the spring?
A. Well, the flood was almost as great I would say in the spring of 1897 as it was in the summer of 1915.
Q. And when did that occur, in the summer time or spring time?
A. It occurred in April.
Q. How long did it last?
A. Not over two weeks, I would say.
Q. And in that year can you state whether or not these lands in this yellow designated territory were cropped and the crops harvested and threshed on the same that year?
A. Yes sir.
Q. Have you been over this territory more or less, have you?
A. Yes sir.
Q. During all the years you have lived there?
A. Yes sir.
Q. And you may state generally to what extent this land in this yellow designated territory has been farmed and the farms tilled and cultivated for small crops?
A. Why, I would say from seventy-five to eighty-five per cent of it.
Q. Have you observed during the years you have lived there flood conditions as great as those of 1897 covering the land I have mentioned up to the year 1916?

A. No sir.
Q. 1897 was unusual?
A. Yes sir.
Q. Have you observed some springs during these years the Bois de Sioux river to get without its banks and overflood for a time some of the lands in this yellow designated territory?
422 A. Well, now it is possible. I was quite young when I came there and in the early years it might have.
Q. But since 1897 to what extent, if at all, have you observed any such springs?
A. I don't remember of any other spring floods.
Q. Have there been any years, within your memory, from the time you have resided there when you have not seen every year up to the year 1915 the lands in the yellow designated territory produce and raise crops of grains, which were harvested and threshed upon the same?
A. It has every year to my knowledge.
Q. The year 1915 you cropped this land you have described?
A. Yes sir.
Q. Had it in what sort of crop?
A. All in wheat.
Q. About what time of the year did you put it in?
A. Why, I would say quite early in April.
Q. And what were conditions as to putting it in the spring—good, bad, indifferent or how?
A. They were exceedingly good. My man was about the first one to start in our community to seed on that land.
Q. And was there any flooding of the lands in the spring?
A. No.
Q. You did experience some floods thereafter in the summer?
A. Yes sir.
Q. How did the waters come in?
A. The water came in from the south. I would say it started along in June and gradually increased until it destroyed the crop entirely.
Q. And did the flood waters of that year overspread your lands?
A. Yes sir.
Q. Did you see them overspread other lands in that yellow designated territory?
A. Yes sir.
Q. And how long did that condition of overflooding exist?
A. Oh, it receded in the fall, there was still considerable land flooded there when it froze up in the fall.
423 Q. How much of your land was overspread?
A. All of it.
Q. How deep was the water on it in deepest place?
A. I would say the water would average two feet and a half to three feet.
Q. What kind of a crop did you have at the time the water came up?
A. An excellent crop of wheat.

Q. What happened to it?
A. The water killed it.
Q. Did you harvest any of it?
A. I did not.
Q. Did you do any farming operations on that land that fall?
A. No, sir.
Q. On account of being too wet?
A. Yes sir.
Q. And what was the condition in the spring of 1916?
A. Well, as soon as spring opened it was under water again.
Q. Was it wet again that spring?
A. It was. We had considerable snow—no I will not state as to snow because I don't remember.
Q. Did some of the waters of the previous year, 1915, remain during the winter?
A. Yes sir.
Q. And were there in the spring?
A. Yes sir.
Q. And then of course you had your winter's snows?
A. Yes.
Q. And some of your spring rains?
A. Yes sir.
Q. And was the land in a wet condition?
A. Yes sir.
Q. And could it or could it not be cropped?
A. No sir.
Q. Or plowed?
A. No sir.
424 Q. Or sowed?
A. No sir.
Q. And did the same flooded condition exist in 1916?
A. Yes sir, the water was deeper, and it came on earlier.
Q. How long did it stay there that season?
A. It stayed until late in the fall sometime.
Q. And in what shape was the land in throughout that season?
A. Water soaked and water standing on it.
Q. What condition was it in to plow that fall?
A. You couldn't get on it.
Q. Did you plow it?
A. No sir.
Q. On account of the wet condition?
A. On account of the wet condition.
Q. What did you observe about the other lands in this yellow designated territory that summer?
A. It was all in the same condition.
Q. Did you have occasion to go along that territory any time during the summer and made any observations?
A. 1916?
Q. Yes.
A. I was over—yes—I was down through there to White Rock, clear down to Wheaton in the early spring of 1916.
Q. What condition did you observe as you went along towards White Rock?

A. It was all under water, even the railroad when we went down.
Q. And that covers substantially this territory designated in yellow on this map?
A. I would think it did.
Q. You have seen this map before?
A. Yes sir.
Q. And as you went into White Rock did you go from the east or west side?
A. On the train.
Q. As you came by Blackmere did you notice any water conditions there?
A. Yes sir.
425 Q. To what extent?
A. Well, the elevator there—a little house the elevator man lives in was surrounded by water and he went from the house to the elevator on a raft.
Q. And as you came to the town of White Rock what did you see as to water conditions there?
A. White Rock was all under water except a portion of main street. That is, it was surrounded by water outside of a portion of main street.
Q. And you saw the Bois de Sioux river at White Rock—stop off there?
A. Well, it was all river there. I wasn't over to where the channel of the river was, but it was a vast body of water there.
Q. As far as you could see around White Rock?
A. Yes sir.
Q. Which way were the waters flooding?
A. North.
Q. Same condition in 1915, the waters flowing north?
A. Yes sir.
Y. Waters proceeding from the south?
A. Yes sir.
Q. Did you go down to Wheaton?
A. Yes sir.
Q. That same time?
A. I wouldn't say at that same time, but I was down there when the water from the Mustinka ditch was washing the track out. I couldn't just say the date. It was in the spring.
Q. That is the track of the Milwaukee as it goes into Wheaton?
A. Yes sir.
Q. That was during the summer of 1916?
A. In the Spring of 1916.
Q. What did you see there?
A. Well, this water that washed out the track wasn't coming down through the ditch. It had apparently left the main channel of the ditch somewhere back east and came out through a sort of draw north of the river proper, and I would think it was sixty to eighty rods wide, and was rushing over the track.
Q. In a southerly direction?
A. Well, in a southwesterly direction, and the trains didn't cross there. They carried the passengers across on hand cars and motor cars from one train to the other.

426 Q. How far from Wheaton?
A. About a mile I would judge—about sixty or eighty rods north of the Mustinka bridge.
Q. And was the water over the tracks?
A. Yes sir, it washed the track out so they couldn't run trains across it.
Q. Well, you could run a hand car across it?
A. Yes.
Q. Did you run a hand car acrossed it?
A. They were conveying passengers from one train to the other acrossed this wash-out with hand cars and push cars, but the water had washed the ties out and there were several men working there building the track up and raising it to get it above the water.
Q. At that time?
A. Yes sir.
Q. And was the water over the tracks?
A. Well, it would be really hard to say. It had washed the grade out from under the rails and ties and just how much higher than the rails it would be I couldn't say, possibly not any, but it had washed the grade out for several rods along there.
Q. Were the rails under water?
A. Yes sir, in places where the grade had washed out and they had sagged.
Q. And the width of this overflowing body of water was about sixty or seventy rods?
A. I would think it was. I wouldn't say it was going over the track that width but the ravine was that wide and it was going over the track in most places.
Q. Then when you got down to the Mustinka ditch did you see that?
A. Yes sir.
Q. See the waters in it?
A. Yes sir.
Q. And see the excavations on each side of the ditch?
A. You mean the dirt piled up?
Q. Yes.
A. Well, I saw dirt, I wouldn't say whether it was on both sides or one side.
Q. You saw dirt piled up there?
427 A. Yes sir.
Q. And saw the water in the ditch?
A. Yes sir.
Q. How much water?
A. Well, it was running all it would hold level full.
Q. And which way?
A. To the southwest.
Q. Towards Lake Traverse?
A. Yes sir.
Q. Do you know where that is?
A. Yes sir.
Q. Ever been there?
A. Yes sir.

Q. Go on down there?
A. No, I went to see the wash out, that was as far as I went.
Q. Was there any current in this Mustinka ditch?
A. Very swift.
Q. Any current in this water going across the tracks?
A. Oh yes.
Q. In a southwesterly direction?
A. Yes sir.
Q. Slow or swift?
A. Very swift where it was going through the tracks.
Q. How long did you stay at Wheaton?
A. I wasn't in Wheaton proper. I was down there probably an hour or an hour and a half. Just during the time the train stopped, and then came back with it.
Q. At the same time you came down to Wheaton you came from Fairmount?
A. Yes sir.
Q. And went through White Rock?
A. Yes sir.
Q. And saw the water conditions in this yellow designated territory?
A. Yes sir.
428 Q. And saw them at White Rock?
A. Yes sir, I believe that that trip I made to Wheaton was before the water was so high in White Rock. I believe that was later on.
Q. You think the time you saw the water in Wheaton coming over the track and the ditch running full was before the time you saw the high water conditions at White Rock?
A. Yes sir.
Q. And before you saw the high water conditions to the extent that they were up in this yellow designated territory?
A. Yes sir.
Q. Now in the fall of 1916, what shape was you- land?
A. Under water until quite late when it receded some.
Q. You receive any crop that year?
A. No.
Q. Did you thresh that fall?
A. We did.
Q. Other lands in the vicinity west in crops and crops harvested and raised in 1916?
A. Yes sir.
Q. Likewise in 1915?
A. Yes sir.
Q. Did you complete threshing operations in the fall of 1916?
A. We did.
Q. Some rain?
A. Yes sir.
Q. But you threshed the grain?
A. Yes sir.
Q. That a rust year?
A. Yes sir.

Q. Did you observe whether or not on the lands not flooded in the fall of 1916 the farmers did their plowing?

A. It was plowing done in 1916. I couldn't say how much.

Q. You didn't do any plowing on this land?

A. No sir.

429 Q. On the land you own?

A. No sir.

Q. What was the condition this past spring on this land?

A. It was wet until quite late.

Q. What was that due to?

A. Well, it was due to the wet condition of 1916. The land was still water soaked this spring.

Q. What did you do to that land this year?

A. Well, I have ninety acres of flax in on that.

Q. Just tell what you did? When were you able to do any plowing on it?

A. I wasn't able to put the flax in until about the 20th of June or the 1st of July.

Q. On account of this wet condition?

A. Yes sir.

Q. In farming operations flax may sometimes be put in late?

A. Well, if you are willing to take a chance. This frost caught the flax so I don't suppose I will realize much out of it this year.

Q. By that you mean it was frosted before it matured?

A. Yes, sir, before it was ripe the frost hit it. I probably won't realize mu*st* out of it.

Q. And what did you do with the other seventy acres?

A. Well, that is grown up to cat-tails. It still lies there. I have tried to get it summer fallowed and plowed under all summer but it seems impossible to get anyone to do it. They will try it and owing to the condition of the foul weeds on there and some places soggy, they will plow a little and leave it.

Q. You have traversed this territory from where the Rabbit river flows into the Bois de Sioux to White Rock this summer?

A. I have.

Q. You remember of the meridian road that formerly was used through this yellow territory down to White Rock?

A. Yes sir.

Q. An automobile road?

A. Yes sir.

Q. It was traveled as the main meridian road north and south in the Red River valley prior to 1915?

430 A. Yes sir.

Q. What has happened to that road since the floods of 1915 and 1916?

A. Well, it has almost disappeared. In places it is grown up to grass and weeds and one thing — another.

Q. Owing to this flooded condition?

A. Yes sir.

Q. And how long did that meridian road—inter-state road was it not?

A. I think it was. I am not sure.

Q. You have heard about the meridian road?
A. I have.
Q. Where has this meridian road been located since these flood conditions?
A. I think it runs a half mile west of Fairmount and straight south then the line leading west out of White Rock, then into White Rock.
Q. Now what have you observed as to conditions of these farm lands in this yellow designated territory that were formerly, cropped, tilled and cultivated for cereal grains during the season of 1917 and at the present time?
A. Why, from my observation they are grown up to cat-tails and weeds of several descriptions.
Q. In that designated territory there are some hay lands?
A. Yes sir.
Q. And were prior to 1915?
A. I think there were.
Q. To what extent, if at all, have these hay lands been partially or at all destroyed by the floods of 1915 and 1916?
A. I couldn't answer that.
Q. Have you seen any hay crops down there this year as you went through there?
A. I don't remember of seeing any. Possibly there was.
Q. You visited this farm of Mr. Lundberg, did you not?
A. I did.
Q. Have you any recollection of his farming operations before 1915?
A. No, I haven't.
Q. You saw the condition of his land this year, did you not?
A. Yes sir.
431 Q. What condition is it in?
A. Outside of a little crop he had there north of his buildings it was grown up to weeds and cat-tails and grass.

Cross-examination.

By Mr. Palmer:

Q. The description of your land is the Northwest quarter of the Northeast quarter and the Northeast quarter of the Southwest quarter, and lots 2 and 3 Section 22, Township 130, Range 47, Richland County, North Dakota, 146.56 acres. Is that correct?
A. I think it is correct.
Q. You say you acquired that land in 1910 or 1911?
A. Yes sir.
Q. Are you able to say which of those years you acquired it?
A. I am not. I can't remember exactly which year it was.
Q. What did you pay for it?
A. I paid $17.50 an acre.
Q. Now that land lays only one mile east of Fairmount?
A. A mile and a quarter.

Q. And until you acquired it in 1910 for $17.50 an acre no part of it had ever been cultivated?
A. No sir.
Q. Never been broken up?
A. No sir.
Q. Never been any buildings put on it?
A. No sir.
Q. Had any use of it been made whatsoever prior to that time?
A. It had always been cut for hay as far as I know.
Q. It had been subject to overflow from the river?
A. Not any more than the rest of the land adjacent to the river.
Q. Now that was a fair valuation was it for lands of that character in there?
A: $17.50 an acre? No, I considered I got a real bargain when I bought it—a big bargain.
432 Q. How long had the man from whom you bought it been the owner of it?
A. Well, I couldn't say. It belonged to an estate, for a good many years before I bought it.
Q. The Davis estate?
A. No, the L. S. Easton estate, I think.
Q. It belonged to his estate?
A. Yes sir.
Q. Now the land lying immediately west of your land, the Northwest quarter of 22-130-47 was purchased by Mr. Schouweiler in 1911?
A. Yes sir.
Q. About the time you bought yours?
A. Yes sir.
Q. Is there a road between your land and his?
A. No sir.
Q. What is there?
A. Just a quarter line.
Q. Now prior to the time he purchased his land there never had been any buildings on it?
A. On the Schouweiler land?
Q. Yes.
A. No.
Q. And there are none now?
A. No.
Q. Has every any of it been cultivated?
A. The Schouweiler land?
Q. Yes.
A. All of it except ten acres of trees.
Q. For how long?
A. Has been for, I would say 25 or 30 years.
Q. Now that is one mile east of Fairmount?
A. Yes sir.
Q. When did you build these buildings on your land?
A. It was the year following the year I bought it, the second year I owned it.

433 Q. 1912 or 1913?

A. 1911 or 1912.

Q. Now your land borders on the Bois De Sioux river?

A. Most of it.

Q. And it is quite high land, is it?

A. Not high land, no. It is about the same elevation as all the land along the river.

Q. How high are the banks of the river at your place?

A. Well, it will run from very little bank on the south to fairly good banks on the north. Up at the Great Northern bridge there is some bank there.

Q. Some banks there?

A. Higher than those at the south.

Q. At the south are there any banks at all to the river between the stream of the river and your land?

A. Yes sir.

Q. How high?

A. Oh, I would say two or three feet.

Q. That is, as you go on your land down to the edge of the water there is a raise in your land of two or three feet as you near the river?

A. All except the extreme south corner. The banks flatten out there considerably, but going north——

Q. Well, I say in the southeast corner?

A. Well, there is very little bank there.

Q. Practically no bank at all?

A. Very little.

Q. The land is right on the level with the edge of the water in the stream?

A. For a certain distance back. I would say there is quite an abrupt raise there. That would be twenty or thirty rods where it raises quite gradually but goes up considerably.

Q. Do you mean to say that in all the time you had known that land it had never been flooded before 1915.

A. Since I have owned it.

Q. Now, prior to the time you owned it or any time?

A. It has not been flooded since I owned it up to 1915.

434 Q. Well, prior to that time?

A. Yes sir, it has.

Q. Flooded practically every spring?

A. No sir.

Q. How often?

A. I don't remember of it being flooded to any extent outside of the spring of 1897.

Q. And do you mean to say that that land was no more subject to overflow and was just as good land as any of the other land around there?

A. No sir, I don't. How much do you include when you say "around there"?

Q. I mean land lying adjacent to this land of yours?

A. It is no more subject to overflow than any other land adjacent to the river.

Q. Isn't the reason that you got that land for $17.50 an acre and that it had never been built upon and never cultivated was because it was subject to overflow?

A. No sir, not entirely.

Q. That wasn't the reason at all?

A. No sir.

Q. What was the reason?

A. Well, the owner is a non-resident, and hadn't been there for a good many years, in fact, I don't know as the son and heir ever had been there.

Q. Didn't he have an agent or anybody that looked after this land for him?

A. Yes sir.

Q. Where did he live?

A. That was Mr. Tuttle of St. Paul, and he is quite a good friend of mine and I asked him about this land. It lays back away from the main traveled highway.

Q. He is a land man?

A. Yes sir.

Q. Know land values?

A. Yes sir. I asked him what he could do on this land for me, and he said he thought he could get it around $15 to $17 an acre for me and he would charge no commission for handling the land, and he didn't.

435 Q. Where did Tuttle live then?

A. I can't say whether he lived at Fairmount then or in St. Paul.

Q. Well, right up to that time or about that time he had lived at Fairmount?

A. Yes sir.

Q. He knew this land and knew what it was worth?

A. Yes sir.

Q. And he sold it to you for $17.50 an acre?

A. Yes sir.

Q. Now you spoke of going over to Wheaton in 1916—Wheaton is between three and four miles east of Traverse Lake or that part of Traverse Lake which they call Mud Lake, isn't it?

A. I don't know. I couldn't say how far it is.

Q. You went there on the railroad?

A. I did.

Q. And after leaving the station of White Rock, proceeding to the south and east you would come up out of the Bois de Sioux valley on top of a very high hill?

A. Yes sir.

Q. And from there the land drops slightly down to Wheaton?

A. I don't know as to that.

Q. But that land after you get up on the hill above White Rock to the east is very much higher than that down in the Bois de Sioux valley?

A. I think it was, yes.

Q. Now you say that you went down on the track until you or you went down on the railroad until you arrived at a point about two miles northwesterly of Wheaton?

A. I went down to the bridge that crosses the Mustinka on the Milwaukee track north of Wheaton.

Q. You went clear down to the Mustinka bridge?

A. Well, down to where it was washed out.

Q. How far was this point where this railroad track was washed out west or northwest of the Mustinka ditch?

A. Well, I would judge there was a strip of possibly fifty to eighty rods,—I couldn't say for sure—but there was a strip of dry land between the draw and the main river.

436 Q. And the water was rushing down that draw sixty or seventy rods in width?

A. Yes sir, I would think so.

Q. And with great velocity?

A. Where it could get through.

Q. And it was rushing with such velocity that it was taking out the railroad grade?

A. It was.

Q. And di- you go on over to the Mustinka ditch or river?

A. I was over to the bridge, yes.

Q. And that was full of water?

A. Yes sir.

Q. And flowing with some velocity?

A. Yes sir.

Q. Had it taken out that bridge?

A. No sir.

Q. So the principal water that you saw coming down there at that time was coming down this draw east of the Mustinka river?

A. Not the principal water. It was coming through there and through the river. The river was full and running very fast.

Q. They seemed to be just as badly flooded over there as you were at Fairmount and White Rock?

Mr. Bronson: Objected to as calling for a conclusion of the witness.

A. Well, it seemed to twist around and go back into the stream as it got towards the Lake. I wouldn't swear to it, but there was more water running there than the river could take care of. That was what I observed.

Q. Lots of rain that spring?

A. 1916?

Q. Yes.

A. I don't remember as to the rainfall. I think 1916 there was quite a heavy rainfall.

Q. Heaviest within your recollection?

A. I couldn't say as to that.

Q. Well, had you ever known in your residence in that section of

the country of water being so high or the floods being so great as they were in the year 1916?

437 A. No sir.

Redirect examination.

By Mr. Bronson:

Q. How long had the estate had this land of yours?

A. I couldn't say without looking at my abstract. A good many years, however, I would say.

Q. You got this land at what you considered a barg-in from Mr Tuttle?

A. I did, at a great bargain.

Q. In the year 1914 what were these lands worth after you had them broke up and buildings on them, the market value of the same prior to this flood?

A. You mean my own land?

Q. Yes.

A. Why this Land Company offered to list my land at $55 an acre.

Q. Mr. Pinkney has some land right adjacent to it?

A. Yes sir.

Q. And you desired to get that land?

A. I tried to buy that Lot 1, comprising about forty of fifty acres from Mr. Pinkney in 1911 or '12.

Q. What did you offer him?

A. If I remember right it was about $65 or $67 an acre.

Q. And that you considered the market value at that time?

A. Yes sir, at the time I would have bought it only be backed out and wouldn't take it.

Q. He wouldn't sell it?

A. No.

Q. Where are these lands situated that you tried to get from Mr. Pinkney?

A. Right south — me. It is Lot 1, bordering right on the river.

Q. The Bois de Sioux river?

A. Yes sir.

Q. Counsel asked you some questions about the banks—this river flows north through this territory?

A. Yes sir.

438 Q. And has a channel that you can recognize?

A. Yes sir.

Q. And it flows in that channel?

A. Yes sir.

Q. And there must be banks on each side of it when it flows through a channel?

A. Yes, some banks.

Q. Throughout its course in this yellow designated territory as shown on Exhibit 1, it has some banks?

A. Yes sir.

Q. Now your lands, as I understand from what counsel has asked you, border on this Bois de Sioux and slope gradually back from the river with a gradual elevation back?

A. Not all of it—some of it does.

Q. And some of it practically level?

A. Yes sir.

Q. Counsel spoke to you about there being a very high hill as you go out of White Rock. There are no very high hills in that sense of the term right around White Rock or around Fairmount or in this territory at all, are there?

A. As I understand it he meant where it comes out of White Rock up on to a hill the elevation above this flat that runs up from Lake Traverse.

Q. When you speak of the hill as being very high it has reference to the elevation of the river below it?

A. Yes sir. There is a little rolling elevation where the track runs through on the eastern side of that land.

Recross-examination.

By Mr. Palmer:

Q. You think the fair market value of your land in 1914 was $55 an acre?

A. I do.

Q. Do you think in the time you had it from 1910 to 1911 to 1914, about three years, that it had increased three-fold in value?

A. I believe it did, if not more. I had broken it up and put up buildings on it.

439 Q. Well, you haven't put on very extensive buildings?

A. Well, they are good farm buildings.

Q. We have a picture of them here in evidence?

A. Yes sir.

Q. Now what was the assessed valuation for 1914?

A. I couldn't say as to that?

Q. About $6 or $7 an acre?

A. I couldn't say.

Q. About $1,115?

A. I don't know.

Q. You wouldn't dispute that?

A. No sir.

Q. Your taxes were some $36?

A. I don't remember.

Q. Now in 1917 the assessed valuation was $1,216? What do you think about the market value in 1917 as compared with 1914?

A. Well, under the present conditions there is no value.

Q. It is not worth a dollar?

A. No sir.

Q. Now why isn't it worth anything?

A. Because there is absolutely no market for it, and every time we put any crop in there we are taking a chance of losing it by water.

Q. How do you know?

A. From past experience.
Q. How do you know that that land is ever in the world going to be flooded again the same as it was in 1916?
A. I don't know.
Q. And as a matter of fact it wasn't flooded in 1917 nor any part of it?
A. Oh, yes it was flooded in 1917.
Q. What time in 1917?
A. Along the fore-part of May.
Q. Well, that was the flood of 1916 staying on it, wasn't it?
A. No sir.
440 Q. Water came up there this last spring?
A. Yes sir.
Q. Just the same as in 1916?
A. Not as bad. It came up and ran acrossed the farm.
Q. It had done that many springs before?
A. Not many. It had done it before.
Q. And haven't you just as much right to assume that it will be dry the same as it was this year in the future as you have to assume that it will be wet the same was it was in 1916 in the future?
A. That is hard to say. It depends on weather conditions.
Q. And isn't the reason that you assume that it will be wet the same as it was in 1916 in the future because you want to think so?
A. No, it isn't.
Q. Haven't you got a claim for damages in here?
A. I have.
Q. How much?
A. I don't know how much.
Q. Did you tell, Mr. Pinkney how much?
A. How much damage?
Q. Yes.
A. I don't remember.
Q. That you wanted out of this?
A. No sir.
Q. Did you tell him how much damage you thought you had suffered?
A. Possibly I did, I can't say.
Q. How much damage do you think you did suffer?
A. Well, that is hard to say.
Q. You wouldn't want to put any estimate on that?
A. I couldn't.
Q. Now you are one of those who have contributed to this fund for the expense of maintaining this case on the part of the complainant?
A. Yes sir.
441 Q. And if a recovery is had of any of the relief prayed for in the complaint you expect to receive your share of the benefit of it?
A. I expect to benefit of any relief that we get. That is what we are trying to get is relief.
Q. Mr. Taylor stated that this agitation and the bringing of this

suit was with the idea of getting an outlet of the Bois de Sioux river to the north, or something of that sort. Is that your idea of it?

Mr. Bronson: Objected to as not a correct statement of Mr. Taylor's testimony, and calling for a conclusion of the witness, not proper cross-examination.

Q. Is that your understanding of it?

A. No sir. My understanding is that the object of this suit is to try and force the state of Minnesota in some way to relieve us in some way, either by stopping this water coming on or by making some adequate outlet for it.

Q. To the north?

A. Well, somewhere.

Q. To the north or south?

A. We are asking Minnesota to take care of her own water and not dump it on to us.

Q. Have you any personal knowledge that any water from the state of Minnesota ever came upon your land?

A. It is hard to tell one water from another when they are all mixed in.

Q. And the water from the State of North Dakota goes into this Bois de Sioux river precisely as that from the state of Minnesota?

A. Yes sir, but we can't handle both of them. One is enough at a time.

Q. That is, the water from the state of North Dakota is all right, but that which comes from the state of Minnesota causes the mischief?

A. We always have handled our own water without doing any material damage to the crops, but when we try to handle water from both Minnesota and North Dakota at the same time we can't do it.

Q. You think the Creator made a mistake when he put water from both sides into Lake Traverse?

A. I don't think the Creator dredged the Mustinka river.

Q. Do you know of your own personal knowledge that the dredging of the Mustinka river had anything to do with this water coming up on your land?

442 A. Yes sir, I know from my own personal knowledge that the Bois de Sioux river can't possibly handle the amount of water that I saw going into Lake Traverse in the spring of 1916 through the Mustinka.

Redirect examination.

By Mr. Bronson:

Q. Counsel has asked you some questions about the market value of the land when you got it and the market value in 1914, and I will ask you to state whether or not the market value at the time you bought this land was not greater than what you paid for it?

A. I think it was, yes.

Q. Could you not have sold it immediately for more?

A. I could have, yes.

Q. Counsel asked you some questions about the market value of this land since these flood conditions have appeared and you- assessments that were made in regard to the same. I will ask you to state whether or not from your residence there and your experience in farming as far as you have had any experience in farming whether or not it is a condition existing at present in this Red River valley where the Bois de Sioux river runs, knowing about the Minnesota project under way and now in operation this season and having been in operation for the past two or three years, with a condition existing like you had in 1915 and 1916, these waters will again overflood these lands?

A. I think they will.

Q. You say them overflooded in 1915 and 1916?

A. I did.

Q. And that has affected the market value of those lands has it not?

A. Yes sir.

Q. Is there any question as to whether or not there was any market value for those farm lands of yours in 1915 and 1916?

A. Absolutely none.

Q. Have you made the observation that this has been a dry year?

A. I have.

443 Q. Are you familiar with the lands in Richland county?

A. Not outside of our own locality.

Q. Five or six miles west?

A. Yes sir.

Q. Do you know about where the watershed with reference to the waters in Richland county start going west—when they start to flow west?

A. You mean in west of Fairmount?

Q. Yes.

A. Why in my observation of the water last spring when the snow went off take it say four miles west of Fairmount the water all runs northwest there off into the Wild Rice river. I think that is the ultimate end of it. There is some water goes into the Bois de Sioux there through this county ditch and ravine that runs through Mr. Taylor's land.

Q. Mentioned in the evidence here?

A. Yes sir.

Q. But further north from there it doesn't run into the river; it runs northwest, off towards the Wild Rice?

A. Yes sir.

Adjournment taken until 10 a. m., September 14, 1917.

444 September 14, 1917.

Hearing resumed at 10 a. m., pursuant to adjournment, with all parties present.

GEORGE A. RALPH, having been called as a witness on behalf of complainants, was duly sworn and testified as follows:

Direct examination.

By Mr. Boutelle:

Q. Mr. Ralph, by profession, you are a civil engineer?
A. Yes, sir.
Q. How long have you followed that profession?
A. Thirty-one years.
Q. From what school or college are you a graduate?
A. University of Indiana.
Q. You reside at the present time in this state?
A. Yes, sir.
Q. And have resided here how many years?
A. Thirty-five years.
Q. And during how many years have you been engaged in the practice of your profession in this state?
A. Thirty-one years.
Q. During that time has the nature of your work followed any particular lines, and if so, what?
A. It has followed drainage, flood control and hydraulics.
Q. And has that specializing continued throughout the greater part of your professional career in this state?
A. Yes, sir.
Q. Have you occupied any public offices in this state during that period?
A. Yes, sir.
445 Q. You may state what they are?
A. I was an engineer in the employe of the Federal government from 1887 to 1898; I was City Engineer of the City of Crookston for seven or eight years beginning with 1891; I was county surveyor of the County of Polk two or three years between 1890 and 1900.
Q. Polk County, Minnesota?
A. Yes, sir, Minnesota. I was State Drainage Engineer of the State of Minnesota from 1900 to 1913. While as State Drainage Engineer I was co-operating with the departments of the Federal government in making topographical and water resource surveys of the state.
Q. During how many years, if at all, have you been familiar with the area in Minnesota that is involved in this case?
A. I have been familiar with the area since the year 1886. I assisted in making surveys—one of the engineers in making surveys in that locality in 1886.
Q. During the time that you were collaborating with the United

States Geological survey did you make a survey of the drainage area in the section of Minnesota involved in this case?

A. Yes, sir, not in its entirety, but in part.

Q. And what is that drainage area commonly known as?

A. The Mustinka river drainage basin—the drainage area.

Q. What you term the Mustinka water-shed, is it not?

A. Yes, sir.

Q. Now calling your attention to the map which is before you, complainant's Exhibit 1, was that map prepared by you?

A. Yes, sir.

Q. That is the original map, as I understand it, from which Exhibit A, attached to the bill was taken, is it not?

A. Yes, sir.

Q. Was that map based on actual surveys made by you
446 on the ground?

A. Yes, sir.

Q. Is it a correct representation of the location of Lake Traverse and the Bois de Sioux river with reference to the areas here in question?

A. Yes, sir.

Q. Calling your attention to the area in North and South Dakota west of the Bois de Sioux and Lake Traverse, shaded in yellow, will you state what that represents?

A. That represents the overflooded area that happened in 1915 and 1916, from the flood that occurred in those years.

Q. Was that area outlined by your own surveys from actual conditions on the ground?

A. Yes, sir.

Q. And at what time was that survey made?

A. It was made during the summer of 1916.

Q. Calling your attention to the certified copy of what is termed Herman Quadrangle, Minnesota, marked Complainant's Exhibit 4, that bears the name at the top of George A. Ralph, General Engineer? Was that yours?

A. Yes, sir.

Mr. Boutelle: I will offer Complainant's Exhibit 4 in evidence.

No objection.

Q. Now returning to Complainant's Exhibit 1, and more particularly the area shown on the easterly side of that map with the closely drawn contour lines—what is the general character of that area?

A. It is rolling, has an elevation on the upper edges of the water slope of about 1,200 feet above the sea, and down at Norcross, near the lower edge it has an elevation of 1,025 feet, nearly 200 feet difference in about twenty-five miles.

447 Q. What will you say as to this being a broken, hilly and irregular country, interspersed with lakes and rivulets, a natural water course and so forth?

A. I would say that was the correct description of the country.

Q. Does that map correctly disclose the channel of the Mustinka river?

A. Yes, sir.

Q. The main Mustinka river from its source in that broken, hilly region that you have described down to its outlet in Lake Traverse?

A. Yes, sir.

Q. This broken, hilly region is what we have termed or described for convenience in the bill in this case as the "Moraine Zone"?

A. Yes, sir.

Q. The shaded, heavy dotted line, following the outline of this moraine zone and circling around to the southern part of the map and then back represents what?

A. The border of the water shed.

Q. What is the outline of what you have termed the Mustinka water-shed?

A. Yes, sir.

Q. And is that line correctly shown on the map?

A. Yes, sir, as nearly as it is practical to get such line.

Q. Was that made from actual surveys by yourself?

A. Yes, sir.

Q. There appears from the map to be two streams from the southern part of this area, having a point of confluence with what is marked as the main channel of the Mustinka. What are those two streams called?

448 A. Five Mile creek and Twelve Mile creek.

Q. Which is the farther to the east?

A. Five mile creek.

Q. And those are the streams which have their points of confluence with the main channel of the Mustinka River in Town 128, Range 45?

A. Yes, sir.

Q. As a matter of practical consideration they are considered branches of the Mustinka channel, are they not?

A. Yes, sir.

Q. What is represented by the area on the map shaded in light blue just west of the point where the Mustinka channel leaves the moraine zone?

A. An overflooded area described as the Delta Zone.

Q. What caused that area of overflow, briefly?

A. The overflow of the Mustinka river and of Five and Twelve Mile creek in a state of nature.

Q. What is indicated on the map by the heavy red line following in part the channel of what is thereon marked as the Mustinka River and continuing west and then southwest into Lake Traverse?

A. The Mustinka state ditch.

Q. That is the ditch described in the bill?

A. Yes, sir.

Q. And is its course correctly marked on the map from a survey made by yourself?

A. Yes, sir.

Q. Does this map show all of the ditch construction in that area, Mr. Ralph?

A. No, sir, there have been several ditches put in since we made the map.

Mr. Palmer: Do I understand the witness to mean state ditches put in since the map was made?

449 A. All kinds of ditches.

Mr. Palmer: The state of Minnesota objects to the — as to any ditches or the construction or existence of any ditches other than the Mustinka state ditch as immaterial under the issues in this case and under the bill of complaint.

Q. My question, Mr. Ralph, was more confined or intended to be confined to showing what was disclosed by this map. It was not intended to show all of the ditch construction or any other ditch construction than the state ditch?

A. No sir, that is right. It was not intended to show all of the ditch construction.

Q. This area which you have described, lying between the moraine zone and Lake Traverse and the Bois de Sioux river, as an area of overflow is what we have termed generally in the bill as the Delta zone?

A. Yes sir.

Q. I don't suppose there will be any question but that the long irregular lines on the map are the ordinary contour lines showing the levels—is that right?

A. Yes, sir.

Q. Now speaking generally, Mr. Ralph, to what are the waters of the Mustinka watershed tributary—that is, what is their natural basin?

A. Tributary to Lake Traverse and the Bois de Sioux basin and finally the Red River valley of the north.

Q. Will you describe the condition or general character of Lake Traverse?

A. Lake Traverse is a low, marshy lake; that is, it has low banks generally and it covers an area of about twenty-five square miles.

Q. Is it a deep or shallow lake?

A. Shallow lake.

450 Q. As a matter of fact, it is true, is it not, Mr. Ralph, that a very large part of that Lake is more like a marsh, grown up with weeds, rushes and so forth?

A. Yes, sir .

Q. What is the mean elevation of the waters of that lake as compared with the sea level?

Mr. Palmer: Objected to as the witness has not shown himself competent to testify.

A. The mean elevation is 974 feet above the sea level.

Q. What is the outlet, if any, for the waters of Lake Traverse?

A. The Bois de Sioux river.

Q. And what is the direction of the flow of those waters?

A. North.

Q. Into what does the Bois de Sioux flow?

A. Flows into the Red River of the north, joining the Ottertail river at Breckenridge and the two empty into the Red River of the North at that point.

Q. Now will you tell us in a general way as to the character of the channel of the Bois de Sioux river from its outlet at Lake Traverse toward the north, the natural channel?

A. The channel for a distance of ten or eleven miles northward from Lake Traverse is a shallow, marshy channel. It has no well defined banks.

Q. About how wide?

A. About forty feet wide. Grass grows all over the channel. From a point about three miles north of Fairmount or from a line drawn east and west through Fairmount, North Dakota, the banks become higher, and from the mouth of the Rabbit River—that is about four miles north of a line drawn east and west through Fairmount—the banks range from fifteen to twenty feet high for the rest of the course of the river between that point and Breckenridge.

451 Q. Now you have referred to Breckenridge—the previous witnesses in the case have referred to Wahpeton. As a matter of fact Breckenridge and Wahpeton are on opposite sides of the river, are they not?

A. Yes, sir, Breckenridge in Minnesota and Wahpeton in North Dakota.

Q. And directly opposite each other?

A. Yes, sir.

Q. Now returning again—the natural channel of the Bois de Sioux from the outlet in Lake Traverse north, is that a deep channel?

A. No, sir, shallow channel.

Q. And in its natural state with the waters at mean elevation, that is other than flood stages or stages of overflow, what would be the depth of that channel?

A. About from two to three feet.

Q. And this general condition, as you have described it, obtains how far north from the outlet?

A. To a point about two miles north of a line drawn east and west through Fairmount, or to a point which is generally described as the High Bridge.

Q. And in the area that you have been describing what is the character of the banks of the Bois de Sioux?

A. The banks are low, varying in height from two to three feet and the ground slopes back very gradually a mile and a half back from the river on the Dakota side and reaches a height of five or six or seven feet.

Q. What is the character of the land in that area, generally speaking, on both sides of the Bois de Sioux river, between Fairmount and Lake Traverse?

A. As to whether it is rolling or level or fertile?

Q. No, I mean as to this general contour?

452 A. It is level, you might say, that is, comparatively level. The Minnesota side is not quite so level as the Dakota side.

Q. It is what is popularly termed in this section as prairie land?

A. Level prairie land.

Q. What is the general slope of the land, toward the north or toward the south?

A. Toward the north along the Bois de Sioux, of course, the fall of the Bois de Sioux, and it slopes toward the east of the Dakota side and towards the west on the Minnesota side, discharging the waters into the Bois de Sioux.

Q. That is, if I understand you, the general slope of the land in the Bois de Sioux valley is toward the north?

A. Yes, sir.

Q. With an incline on the part of the lands to the east of the river west toward the river and on the part of the lands west of the river east toward the river?

A. Yes, sir.

Q. That is correct, is it?

A. Yes, sir.

Q. And the general variation of that incline toward the river basin, I presume, is correctly shown by the contours on the map?

A. Yes, sir.

Q. What is the fall approximately per mile between the outlet in Lake Traverse and the mouth of the Rabbit river?

A. About one foot to a mile.

Q. And what is the distance between those two points?

A. The distance is approximately fifteen miles. The elevation of Lake Traverse is 974 feet above the sea and of the Bois de
453 Sioux about 960 feet above the sea at the mouth of the Rabbit river.

Q. What is the general character of the area in Minnesota lying east of Lake Traverse and the Bois de Sioux basin in this area and adjoining that basin?

A. It is generally level prairie land.

Q. Is the general fall of that area as you have indicated toward the north?

A. Yes, sir.

Q. And its incline toward the basin?

A. Yes, sir.

Q. And what is the average elevation of the easterly margin of that level area as compared with the level of the waters in the river at mean station?

A. I think the average elevation would be about 1,000 feet above the sea level and the waters in the river from 974 to 960.

Q. What is the direction of slope and flow from what we have termed the moraine zone, or from the northerly part of the moraine zone?

A. The direction is toward the south, that is the river flows south.

Q. And that continues to a point as shown on the map in Township 127 where it flows west?

A. Yes, sir.

Q. Toward the river?

A. Yes sir.

Q. And what is the general slope of the southern portion of this area?

A. You refer to the Mustinka drainage basin?

Q. Yes sir.

A. Northerly and northwesterly.

Q. And do the waters from the northerly and southerly part of this area have a point of common confluence?

454 A. Yes sir.

Q. And that point is indicated where on the map, approximately?

A. Section 7, Township 128, Range 45, in what is known as the Delta zone.

Q. What is the approximate area in square miles of this Mustinka watershed?

A. Seven hundred fifty square miles.

Q. And in a state of nature where would those waters drain and discharge?

A. They would drain through the Mustinka river and its tributaries and discharge into Lake Traverse and the Bois de Sioux river.

Q. You have already told us that the lands in the so-termed Moraine zone were broken and hilly, having a much higher elevation than those on the prairie zone on the west. What effect, speaking generally, with respect to the flow of surface waters is had by such a broken and hilly region as that?

A. Waters are thrown off much more rapidly.

Q. These waters, then, if I understand you, from this entire watershed, in a state of nature followed these natural channels of the Mustinka river and its tributaries into Lake Traverse?

A. Yes sir, Lake Traverse and the Bois de Sioux river.

Q. Were you familiar with the conditions obtaining in these areas which you have described before the occurrences that are involved in this action?

A. Yes sir.

Q. Had you occasion to be on the ground a great many times in connection with your engineering work?

A. Yes sir.

Q. In connection with your work as State Drainage Engineer had you had occasion to make investigations of this land on behalf of the State of Minnesota?

455 A. Yes sir.

Q. And the surveys of the drainage area?

A. Yes sir.

Q. And over what years did that work extend?

A. From 1900 up to the present time. And I have made some examinations there prior to 1900.

Q. What, Mr. Ralph, was the character of the Mustinka channel, take from a point west of the Great Northern Railroad crossing in Township 128, Range 44, what was the general character of that channel?

A. For a distance of about eight miles westerly from that point the channel was very crooked, very shallow and in places it was

almost obliterated. The channel would appear to be lost. The surface of the ground along its course was rough and covered with a dense growth of rushes and water grasses.

Q. And what was the character of the surrounding area, the lands there, with respect to their elevation as compared with that of the channels you have described?

A. The lands were wet and marshy.

Q. Were they level or otherwise?

A. Quite level.

Q. Did this channel of the Mustinka river in the portion you have described have any well defined banks?

A. No sir.

Q. As a matter of fact was there a well defined channel there?

A. No sir, there was not. It was a difficult matter to follow the channel. It would widen out into marshes and ponds, and in places there would be really four or five channels and all of them would converge into one channel again and then flowing along further the channel would be entirely lost, and it was a difficult matter to follow the course of the stream.

456 Q. What will you say as to the fall of those lands in the six miles or more that you have indicated, toward the west?

A. The fall was quite steep for the first two miles, and then it was flatter again—Oh, about four feet to the mile; well, probably three feet to the mile would be a better way to describe it.

Q. Now this channel as you have described it was the outlet in a state of nature for the running off of the surface waters and so forth and so forth of this Moraine zone, was it?

A. Yes sir.

Q. And was it the only outlet at that point?

A. The channel of the Mustinka?

Q. Yes sir.

A. No sir, in flood times part of the water flowed down the Rabbit river.

Q. No, that is not what I am getting at. I am speaking now about the discharge of the waters of what we term the Moraine zone?

A. The Mustinka was the only outlet.

Q. So whatever the volume of discharge from that Moraine zone was in the area in question there was no other natural channel of discharge than that which you have described in your testimony?

A. No sir.

Q. What was the result, in times of what we will term the spring freshets, of excessive precipitation, so far as the ability of this channel which you have described to handle the discharge waters is concerned?

A. The channel was insufficient to take care of the flood waters.

Q. And what happened?

A. A large area was overflooded and the waters were detained for a long time in what was known as the Delta zone.

457 Q. And that area where the waters were detained as you have described it, in a state of nature, would be relatively where on this map, Complainant's Exhibit 1?

A. Along the Mustinka river and covering the area tinted blue.

Q. And about what would that area represent in miles?

A. About seventy-five square miles.

Q. What was the effect of the amount of waters thus overflooding as you have described?

A. The waters were detained in this basin—that is a large portion of the waters, and the discharge of the Mustinka river below this detention basin was much less than it is under similar flood conditions at the present time.

Q. What would be the natural and necessary effects with respect to flow of such a detaining basin as that?

A. It would be slow and much of the waters so detained would be evaporated.

Q. Would the question of saturation of the earth and seepage play any part in the flow and discharge of the waters?

A. Yes sir.

Q. So that, generally speaking, given a detaining area of this character what would you say as to the relative time which would be required for these waters to reach their outlet as compared with a case where they had an open channel, unobstructed?

A. The water that would reach the outlet under such conditions in a state of nature would reach it in much greater time than would be required under present conditions and a large part of the flood waters that now flow down would never reach the Lake Traverse in a state of nature.

Q. What was the character of the channels of what you have described as Five and Twelve Mile creeks, running north from the southern part of this area to the point of confluence with the
458 Mustinka?

A. The character of the channel of Five Mile Creek was the same as the Mustinka, that is, for the last four or five miles. The channel of Twelve Mile creek was better defined and didn't overflow as much as the Mustinka and Five Mile Creek.

Q. Under natural conditions, Mr. Ralph, did or did not both of these channels contribute to the overflooding of this detaining basin which you have described?

A. They did contribute.

Q. In periods of excessive high waters in this detaining basin was there any other natural outlet than the Mustinka channel?

A. Yes sir.

Q. What was that?

A. That was the Rabbit river.

Q. The Rabbit river as indicated on Complainant's Exhibit 1, extending from a point?

A. In Section 1, Township 128, Range 46.

Q. And it flows as indicated on the map from that point in a general northerly direction and westerly direction to a point of confluence in the Bois de Sioux in Section 34, Township 130, Range 47?

A. Yes sir.

Q. Without taking too much time to it, Mr. Ralph, what was the

general character of the channel of the Rabbit river in a state of nature?

A. The upper three miles was similar to the channel of the Mustinka and it was shallow and not very well defined. From that point on to the outlet it had a well defined channel.

Q. And how did its fall compare with that of the Mustinka?

A. The elevation of the Rabbit in Section 1, was 996 feet above the sea, and where it joined the Bois de Sioux it was 960
459 feet, a thirty-six foot fall in a distance of about eighteen miles.

Q. What was the fall of the Mustinka river in its natural state?

A. The Mustinka, where it crosses Twelve Mile Creek, has an elevation of 993.5 feet above the sea, and where it enters Lake Traverse in the ordinary state, 974 feet, or 19.5 feet in about twenty miles, that is in straight miles, but about forty or fifty miles by river.

Q. And to the east of the starting point which you have described in your last answer what was the fall of the channel?

A. Of the Mustinka?

Q. Yes, in a state of nature?

A. Well, it didn't have any channel. The fall of the surface was about three feet to the mile.

Q. The channel of the Rabbit river accommodated a part of this overflow of what you have described as the detaining basin under what conditions?

A. Under flood conditions. That is, when the water reached a stage of five feet and over above the bed of the Mustinka in Section 7, Township 128, Range 45, they would then begin to overflow and discharge by way of the Rabbit river.

Q. Now, in order that I may fully understand your answers, what do you say was the necessary effect on the flow of the waters or their accumulation in this detaining basin or overflooded area with respect to their reaching Lake Traverse?

A. The necessary effect was that in flood times fully half of the flood waters would either be detained in this detention basin or pass off by way of the Rabbit.

Q. When you say detained in the detention basin would you include in that the effect of evaporation?

460 A. Well, evaporation would take place of course after they were detained.

Q. Well, as a matter of fact under those conditions would it be correct to say that any considerable portion of those waters detained would never reach Lake Traverse?

A. That would be true, yes, sir.

Q. Now did the conditions which you have described continue up to the time of the construction of what is known as the first State Mustinka Ditch?

A. Yes sir, and to a considerable extent after that time.

Q. What is known as the first Mustinka State Ditch was constructed where?

A. It was constructed from a point about a mile and a half west of where the Great Northern Railway track running north from

Norcross crosses the Mustinka, westward to Twelve Mile Creek, a distance of about six and a half miles.

Q. And is the location of that ditch correctly described on Complainant's Exhibit 1?

A. Yes sir.

Q. It followed then in the main as what would appear from this map to be the old channel or depression of the Mustinka river?

A. Yes sir.

Q. But it didn't follow the convolutions or turns and twists of that river?

A. No sir.

Q. Now what were the dimensions of that ditch, that is its width and depth?

A. As I recall it now it had a bottom width of twelve feet, and a depth varying from four to ten feet, a top width varying from twenty-four feet to about thirty-six feet.

Q. And would those dimensions generally obtain throughout the entire length of that ditch?

461 A. The upper portion was more shallow. The lower part of the ditch was quite deep.

Q. And how did the capacity of that ditch compare with the natural channel of the Mustinka?

A. It was many times greater than the natural channel and to a considerable extent prevented the overflow of lands along the nature channel.

Q. And what approximately was the fall of that ditch to the mile from its commencement to its outlet in Twelve Mile Creek?

A. I would say about four feet on the bottom of the ditch, about four feet to the mile.

Q. When was that ditch constructed by the State?

A. It was constructed, as I recall it now, between the years 1894 and 1896.

Q. Were you familiar with the conditions that obtained in that section after the construction of this ditch?

A. Yes sir.

Q. What was the result of its construction?

A. It transferred a portion of the waters that were detained in the detention basin known as the Delta zone farther down the Mustinka and overflowed the land much worse along the Mustinka below the outlet of the original state ditch.

Q. Can you tell us approximately what the area of overflow was in that region?

A. I cannot. I would estimate it from six to eight thousand acres, but it is just an estimate.

Q. You couldn't tell us in miles?

A. Seven or eight miles down the river were overflooded.

Q. And was that condition of overflow permanent or otherwise?

A. It was of sufficient extent to destroy the value of the land for agricultural purposes.

462 Q. Is the ditch which you have just described that which is referred to in the preamble to the act of 1911 of the Legislature of the State of Minnesota authorizing an extension?

A. Yes sir, the ditch that I have just described?
Q. Yes.
A. No, the ditch I have just described is the original ditch.
Q. But the preamble of that act as will be presently shown, refers to a ditch that was constructed through this general area which resulted in overflow of certain lands?
A. Yes sir.
Q. And the act itself, which will be introduced in evidence later, was to relieve that overflow and authorized an extension of that ditch to Lake Traverse. Now I ask you if the ditch described by you is the one referred to in the preamble of the act?
A. Yes sir.
Q. What was the result so far as the flow or discharge of these waters was concerned of this new detaining basin, if I may use that term?
A. The result was to carry those flood waters down to Lake Traverse?
Q. No, I have not come to that yet. You have already told me that in a condition of nature before any ditch was constructed owing to the incapacity of the Mustinka channel there was a comparatively large area of overflow and that the effect of that overflow was to create a natural drainage or detaining basin. Now what I want to inquire is as to whether the same general physical conditions resulted after this first ditch was constructed?
A. The stage and amount of water that was held in the Delta zone was lowered and part of those waters were transferred lower down.
463 Q. By lower down you mean to the west?
A. Yes sir, west and south.
Q. Did it operate at that point as creating a new detaining basin?
A. Yes sir.
Q. And what was the effect of that new detaining basin upon the flowage of the waters into Lake Traverse?
A. It did not materially increase the flow of waters into Lake Traverse.
Q. I believe you stated that in this second area of overflow there was a condition of more or less permanent overflowage; that is the water remained there permanently?
A. Yes sir.
Q. Now following the enactment of the Act of 1911, what was done?
A. The original ditch was extended due west a distance of about two miles, making a cut off of about seven miles in the Mustinka and from there down the Mustinka channel to a point near its outlet in Lake Traverse.
Q. And when was that ditch construction completed?
A. In the spring of 1915.
Q. What was the dimensions of that ditch?
A. It had a bottom width of thirty feet, a side slope of one to one, a top width varying from 50 to 60 feet for the first two miles and from that point to its outlet it had a bottom width of forth

feet and a depth of about five feet and a top width of about fifty feet.

Q. And did that ditch follow the general course of the original Mustinka channel?

A. It did with the exception of the first two miles.

Q. And in that first two miles as indicated on the map here it cut off the detour of the Mustinka to the North?

A. Yes sir.

464 Q. Is the general representation in red, the red line on this map of this new construction, correct?

A. Yes sir.

Q. How did the new ditch compare in size with the original Mustinka channel in a state of nature.

A. It had a greater carrying capacity than the original channel for the reason that it had a much greater velocity.

Q. How were its dimensions as compared with the channel with reference to the depth, heighth of the banks and so forth?

A. It was much deeper. It had a depth of approximately twelve feet the first two miles and the natural channel was only about five feet deep, five to six or seven.

Q. This ditch was constructed in substantially a straight line without attempting to follow the tortuous course of the river?

A. Yes sir.

Q. Can you tell us about the relative mileage of the ditch construction as compared with the natural channel of the Mustinka?

A. I would say that the natural channel was from two to two and a half times as long as the ditch.

Q. You are now referring to the ditch with reference to which I am inquiring, the new ditch, the extension?

A. Yes sir.

Q. I call your attention to Complainant's Exhibit 5 and ask you what that is?

A. That is a map which is described in the title as Map of the Portion of Traverse County, Minnesota, showing Natural and Artificial Drainage Channels. That portion might more definitely be described as part of Township- 128 and 129, Ranges 45 and 46.

Q. Is this map made from a survey prepared by yourself?

A. Yes sir.

Q. It shows the portion of the Mustinka river, including the big bend to the north of the Mustinka river in Township 128,

465 Range 46, and Township 128, Range 45?

A. Yes, sir.

Q. With the points of confluence and flow of what are known as Five Mile Creek and Twelve Mile Creek?

A. Yes sir.

Q. The state ditch which you have just been describing appears at what point on the map?

A. At the lower part of the map.

Q. Calling your attention to the map at a point which is thereon designated by the letter "N", I will ask you if the map discloses a cross-section of the ditch at that point?

A. Yes sir.

Q. And that is the cross-section that appears on the left side of the map, a cross-section of the Mustinka cut-off channel at the part marked "N"?

A. Yes sir.

Q. Does that correctly disclose the dimensions of the Mustinka ditch at that point?

A. In the condition it is today.

Q. Well, so far as the capacity of the ditch is concerned, the size of it, is it any different today than when it was opened?

A. Yes sir.

Q. What has been done to it?

A. It has eroded considerably, and has caved in so the banks are considerably wider than when constructed.

Q. There also appears upon this map a cross-section of the Mustinka river at the point makred "M". That is the point showing the letter M, in Township 128, Range 46, near the——?

A. Southwest corner of Section 1, yes sir.

Q. Was that cross-section made from a survey made by yourself of the natural conditions?

466 A. Yes sir.

Q. The map also shows a cross-section of the old channel of the Mustinka river at point "A"? That is the point near the confluence of the river with Five Mile Creek, marked "A" on this map?

A. Yes sir.

Q. And that is also a correct profile of the channel at that point?

A. Correct cross-section, yes sir.

Q. Now returning to the cross-section of the Mustinka channel at the point "N", the depth of that channel to its first bank, if that carries my meaning, is what?

A. Fourteen feet as I recall it.

Q. And its width from bank, without including the waste banks of the eroded embankments is what?

A. Seventy-five feet.

Q. And the Mustinka channel cross-section at point "M" shows a depth of?

A. Eight feet, as I recall it to the first banks.

Q. And the width?

A. A width of forty feet of the channel proper and ninety-six feet from high bank to high bank.

Q. And the cross-section of the old channel of the Mustinka river at the point marked "A" shows a depth of what?

A. Of 6 feet.

Q. And a width of what?

A. Fifty feet.

Mr. Boutelle: We offer Complainant's Exhibit 5 in evidence.

Q. I call your attention to a paper marked Complainant's Exhibit 6 and ask you what that shows, Mr. Ralph?

A. That shows a cross-section of the Bois de Sioux
467 river and Rapid River, near White Rock, South Dakota, and Fairmount, North Dakota.

Q. And are those cross-sections correctly made from surveys by yourself?

A. Yes sir.

Q. And when were those surveys made?

A. They were made in June and July, 1917.

Q. And the locations shown on this paper with respect to the particular points indicated are correctly shown?

A. Yes sir.

Mr. Boutelle: We offer Complainant's Exhibit 6 in evidence.

Q. Now you say the extension of the Mustinka ditch was completed into Lake Traverse in 1915?

A. Yes sir, completed to its present terminus.

Q. At what time in the year was that construction completed?

A. It was early in the spring. I couldn't state just the date.

Mr. Boutelle: In connection with the testimony of this witness, I desire at this point to offer Chapter 138 of the General Laws of Minnesota for 1911, in evidence as Complainant's Exhibit 7.

Stipulation.

In this connection it is agreed between counsel for both sides that either party may offer in evidence any general statute of the state of Minnesota and that the regularly published statutes of the state shall be competent evidence in that respect, subject to such objections as the other side may care to make to the materiality or relevancy, and that the court may take judicial cognizance of such statutes.

Mr. Boutelle: I also offer in evidence Chapter — of the General Laws of 1915, as Exhibit 8.

468 Examination by Mr. Boutelle:

Q. I will call your attention to the photographs marked Complainant's Exhibits 9, 10, 11 and 12, and ask you if those photographs were taken by you?

A. Yes sir.

Q. At what time?

A. In June and July, 1917.

Q. And will you state what portion of the area in question, if any, each of these photographs despict?

A. Exhibit 9 is a photograph of the Mustinka State Ditch at a point marked "N" on Exhibit 5. Marked on the back "Big Mustinka cut-off channel, Section 13-128-46. Exhibit 10 is a view of the Mustinka State Ditch at the point where it leaves Twelve Mile Creek in Section 18, Township 128, Range 45. Exhibit 11 is a view of the ditch and dike on the South side of Section 5-128-45.

Exhibit 12 is a view of the ditch and dike on the south side of Section 5-128-45.

Mr. Boutelle: We offer Complainant's Exhibits 9 to 12 inclusive in evidence.

Q. Coming down to the year 1916, were you on the ground in the area in question or any part thereof during that year?

A. Yes sir.

Q. Did you have an opportunity to observe what has previously been described here as the flood conditions in the Bois de Sioux valley?

A. Yes sir.

Q. Will you state the conditions as you yourself observed them at that time?

A. Lake Traverse on April 7, 1916, reached a stage of 977 feet above the sea. The waters of the Bois de Sioux at White Rock had spread far from the banks and had entirely inundated the village of White Rock, and had reached an elevation at that point of 974 feet above the sea level. The waters from that point
469 down to the mouth of the Rabbit covered a large area extending more than two miles back from the channel of the river in places on the Dakota side, washed out part of the Milwaukee track, and traffic was suspended on the Milwaukee road for several days. There was a general high flood condition in the Bois de Sioux and Lake Traverse valley.

Q. And in width of area did that flooded area increase or diminish toward the north?

A. It diminished. It reached its crest April 6 and 7, 1916.

Q. When you say it reached its crest you mean its crest in Lake Traverse?

A. Yes sir.

Q. Now being a little more explicit with reference to the conditions in the South Dakota area or their bearing on the flood conditions farther north, what do you say the condition of the waters with reference to the Village of White Rock and in that locality were?

A. The village of White Rock was inundated to a depth of about two feet, the surface of the ground—and the waters extended westward clear across the valley to the high lands on the west.

Q. Would the condition of overflow and inundation in the area in question at this time be substantially as shown on the map, Exhibit 1, shaded in yellow?

A. Yes sir.

Q. Did you have an opportunity of observing more particularly with reference to conditions in the Bois de Sioux Valley how long those flood waters remained up and over flooded the lands?

A. Yes sir.

Q. How long did that condition of overflowage continue?

A. I think all summer.

Q. Now in order that there may be no misunder[illegible]anding
470 in regard to it, we were speaking with reference to 1916?

A. Yes sir.

Q. There was some rescission of the waters in the fall of 1916?

A. Yes sir.

Q. What will you say as to whether a portion of the area was flooded or not at the time it froze up in the winter?

A. A portion was flooded.

Q. And roughly speaking about what portion was flooded at that time?

A. Well, either flooded or in a wet condition fully half of the area.

Q. Now did you observe the conditions, Mr. Ralph, in 1915?

A. Yes, sir, but not as closely as I did in 1916. I was there at different times and saw a flooded condition, but I am not able to describe that condition as well as I can the floods of 1916.

Q. Well, will you describe in a general way with reference to 1915—what would you say?

A. I saw a high flood condition. That was in June, 1915. I was there again in July and August, two or three times during the summer, and there was a high flood condition generally throughout the summer, but I don't think it was as high quite as in 1916.

Q. What was the condition of the waters of Lake Traverse in 1915?

A. They were high.

Q. You did not take an accurate measurement at that time?

A. No.

Q. Was the area between Lake Traverse and the south line of North Dakota inundated during 1915?

471 A. Yes sir.

Q. That is this portion shaded in yellow.

A. Yes sir.

Q. But you think the extent of the inundation, that is the depth of the water was not as great as in 1916?

A. I don't think it was.

Q. How deep would the waters be overflowing these lands in 1916 when you examined them more carefully?

A. Varied from the point where they ran out to meet the lands, where there was no depth, to about five feet.

Q. And the latter point where the depth was what?

A. Five feet at the channel of the river, the river itself. The high depth of the channel at high stage would average about from seven to eight feet.

Q. Now speaking generally of these conditions, where was the flow? In what direction was the flow of these flood waters?

A. The flow was north. The flow was sluggish though.

Q. Are you able to state whether the waters that caused this overflow came from Lake Traverse or not?

A. Yes sir.

Q. Did they?

A. Yes sir.

Q. And was that true during both those years?

A. Yes sir.

Q. Did you take the rate of the flow in either of those years?

A. I did in 1916.

Q. And at what point?

A. Well, at various points along the river between White Rock and the mouth of the Rabbit.

Q. What was the rate of flow?

A. The average rate of flow was at 3/10 of a foot per
472 second—well 5/10 to 7/10 of a foot per second. It varied. During the real high water it might have been a little faster.

Q. Did you have an opportunity and did you investigate the conditions prevailing north of the mouth of the Rabbit river in the Bois de Sioux valley?

A. Yes sir.

Q. Was there any overflowage in that area?

A. A little bench of the river was overflooded, but there was no overflooding of the high banks.

Q. And where is that low bench of the river to which you refer—How far north of the Rabbit?

A. There is a bench beginning about a mile and a half south of the Rabbit and extending north to Breckenridge. That bench is the bank immediately adjacent to the channel which extends back in varying widths from 50 to 100 feet and then raises to an elevation of from 15 to 20 feet above the channel.

Q. And did that start with the point at the mouth of the Rabbit river and extend north?

A. Yes sir, it didn't start there. It started really a mile and a half south of there, but the banks were well defined at the mouth of the Rabbit and from that point northward.

Q. Were you familiar, Mr. Ralph, with the general character of the land in North Dakota in this flooded area?

A. Yes sir.

Q. What was the general character of that land as to its being agricultural land or otherwise?

A. Generally suitable for agricultural purposes.

Q. And what will you say with reference to that condition existing practically to the banks of the Bois de Sioux?

A. That was true. It did exist practically to the banks of the Bois de Sioux.

Q. Is that land low and marshy, I mean independent of these flooded conditions to which we have referred?

A. No sir, it is not marshy.

473 Q. And is that condition which you have last stated generally applicable to the entire territory which we have shown as being in this flooded or overflowed area?

A. Yes sir, with the exception of from 50 to 100 feet along the channel of the river.

Q. Under natural conditions, Mr. Ralph, or while natural conditions existed without any artificial changes in the drainage area, what was the condition of overflow in the Bois de Sioux valley?

A. In a state of nature?

Q. Yes sir.

A. It was not sufficient to destroy the use of the land for agricultural purposes except on very rare occasions.

Q. And what will you say as to the run-off or discharge of these waters?

A. The run-off of the Bois de Sioux was similar to what it is at the present time, but there was never nearly as much water to be discharged through the Bois de Sioux in a state of nature as there is at the present time.

Q. It has been testified here by various witnesses—I don't know whether you heard the testimony or not—That in previous years, that is, before 1915 and 1916, there were periodic times of overflow in the spring of the year or otherwise, but that the waters would run off from the lands in a period of from three to eight days. Would that correspond with your observations?

A. Yes sir.

Adjournment at this time taken until 1:30 p. m.

474 September 14, 1917, at 1.30 p. m.

GEORGE A. RALPH, direct examination, continued. Examined by Mr. Boutelle:

(Complainant's Exhibit 13 is marked.)

Q. I call your attention to Complainant's Exhibit 13 and ask you what that is?

A. That is a profile of highway across the Bois de Sioux valley at the village of White Rock, South Dakota.

Q. And indicating the conditions at what time?

A. At the time of the high water in April, 1916.

Q. Was this profile or cross-section made by yourself?

A. Made under my directions, yes, sir; under my supervision.

Q. And is it a true and correct representation of the conditions it purports to represent?

A. Yes, sir.

Q. As they existed at the time on the ground?

A. Yes, sir.

Mr. Boutelle: We offer Complainant's Exhibit 13 in evidence.

Q. Mr. Ralph, as I have already stated in substance, it has been testified to by previous witnesses that for a period going back for between 20 and 30 years there were what have been described as periodic overflows of the area in the Bois de Sioux river contiguous to its channel which have continued, that is, the high stages of water have continued at varying periods from 3 to 8 days, and that those conditions existed in times of spring freshets or excessive high waters, and that the conditions as thus represented were substantially as I have stated during all those years down to 1915. In the years of 1915 and 1916, subsequent to the opening of this Mustinka state

ditch, it is testified that the overflow in the Bois de Sioux
475 river continued throughout practically the entire season of both those years. I will ask you, assuming the conditions to be as I have thus far stated, and taking into consideration the facts which you have testified to on the stand, whether you are able to express an opinion or state as to the cause or occasion of this flood condition during the years 1915 and 1916; answer that by yes or no.

A. Yes.

Q. You may state what your opinion is.

Mr. Palmer: That is objected to as not a correct statement of the substance of the testimony thus far given and assuming facts not established by any evidence in the case, and that there has been no foundation laid for such opinion, that the witness has not shown himself competent to testify, and as calling for the opinion of this witness as an expert on matters which are not the subject of expert testimony.

A. It is my opinion that the construction of the Mustinka state ditch, both the original and the extension, was the cause of the high stage of water in Lake Traverse in the years 1915 and 1916. Had the Mustinka river and the Mustinka watershed been in the condition that they were in a state of nature, that the water would not have reached a stage in Lake Traverse nearly as high as it did in the years 1915 and 1916 and fully one foot lower; that the construction of the Mustinka state ditch resulted in destroying the detaining basin found in the area described as the delta zone; it resulted in cutting off a large amount of flood waters that would naturally pass down the Rabbit river and in carrying the flood waters into Lake Traverse much more rapidly than they would have been carried in a state of nature. In a state of nature the waters coming down from the Mustinka watershed would pass over the detaining basin and a large part of them would remain there and evaporate and would at no time teach Lake Traverse; a large portion of the waters would pass down the Rabbit river basin in extreme flood periods; and that, owing to the sinuous nature
476 of the Mustinka river below the detaining basin and to the fact that the detaining basin was a large swampy area overgrown with rushes and aquatic grasses, that the water in a state of nature passed over the detaining basin very slowly and down the channel of the Mustinka to Lake Traverse, and it is my best judgment that not more than one-half of the volume that reached Lake Traverse in 1915 and 1916 would have reached the lake had conditions been as nature made it.

Mr. Boutelle:

Q. As I understand you then, and if I state this incorrectly you may correct me, your opinion as to the primary cause of the overflowed condition of the Bois de Sioux valley was the excessive stage of the waters in the Lake Traverse basin, is that right?

A. Yes, sir.

Q. And that the excessive stage of waters in the Lake Traverse

basin was due to the accession or increase due to those artificial conditions, is that right?

A. Yes, sir.

Q. Now, will you explain how the increased water stage in Lake Traverse causes or occasions the flooded conditions in the Bois de Sioux valley?

A. Lake Traverse is naturally an impounding reservoir and waters are impounded in the lake until they reach a stage naturally of 975 feet above the sea. The outlet from Lake Traverse is small, it has a shallow and narrow channel and choked to a considerable extent with aquatic grasses. As a consequence, the water escapes slowly from Lake Traverse and waters flowing in there accumulate, and if the flood is a high flood, what is known as a high flood, the waters will raise in Lake Traverse to the high elevations recorded and gradually work down the Bois de Sioux river. When you raise them above elevation 975 or 976 you throw a much greater volume of water over the valley of the Bois de Sioux; it also makes
477 a much larger impounding reservoir of the lake. Of course, this has an area of from 25 to 41 square miles, as a consequence, it takes a much longer time for the waters to run off. Waters that would run off under natural conditions in a week or ten days, might require two months under the changed conditions.

Q. That is, by the changed conditions, you mean by the raising of the flood stage in the Traverse reservoir from one foot or thereabouts?

A. From a foot to two feet, yes sir.

Q. Above the normal flood stage?

A. Yes, sir.

Cross-examination.

By Mr. Palmer:

Q. Your answer to the hypothetical question propounded assumes that there was 75 square miles, or thereabout, of area flooded, and on which water stood permanently in the so-called delta zone, at least prior to the construction of the first section of the Mustinka state ditch?

A. It assumes that water stood generally over the delta zone to a greater or less extent than that shown by the part shaded blue, the waters, of course, would recede, and the area would gradually grow less. It assumes that in a state of nature that part of the flood waters passed off by way of the Rabbit river.

Q. How great an area of flooded land in this so-called delta zone do you take into consideration in answering the hypothetical question propounded to you?

A. From 60 to 75 square miles at extreme flood stage. I don't mean by that that entire area was flooded, but that that entire area was saturated or flooded.

Q. And if the area in fact in the delta zone either saturated
478 or flooded was less than 60 to 75 square miles, your opinion would be modified accordingly?

A. It would be modified in this way, that a greater mass of the water would pass off by way of the Rabbit than otherwise would.

Q. Then the smaller the area that was flooded or saturated in the delta zone, the more water would pass off by way of the Rabbit river?

A. If the water was not detained in the delta zone, there would be a greater volume reaching the confluence of the Mustinka and Twelve Mile creek, at the point where the Rabbit river leaves the Mustinka channel or basin; consequently, there would be more water go down the Rabbit river if the stage was higher.

Q. The smaller the delta zone, the greater would be the quantity overflowing into the Rabbit river?

A. Yes, sir, if the flood condition is on, and by some means you had decreased the delta zone.

Q. Is it your opinion that the overflow into the Rabbit river basin took place only in times of flood?

A. It did not take place in times of ordinary low water, not from the Mustinka channel.

Q. Did it take place in times of ordinary high water?

A. Yes, sir.

Q. And when are the seasons of ordinary high water in that locality?

A. Usually the spring time and June and July.

Q. Then in June and July and in the spring time the waters naturally from the Mustinka basin overflow into the Rabbit river Basin?

A. Yes, sir.

Q. Now, what is the first year that you know of the waters overflowing from the Mustinka basin into the Rabbit basin?

479 A. In every year of ordinary high water, or, I might say, in every year where the flood reached anything above low water stage; and I will define low water stage by saying that I mean the stage of having a depth of from five to six feet in the channel of the Mustinka, the waters from the Mustinka overflowed and passed off by way of the Rabbit river.

Q. Practically every year since your knowledge of the locality?

A. Yes, sir; well, every year when there was any flood conditions on.

Q. I asked you when is the first year that you remember of it doing that, Mr. Ralph; you haven't answered that.

A. To enumerate the different years, I might say generally that fully two-thirds of the years since I have become acquainted with the Rabbit river valley, conditions have been such that the waters would overflow and pass off by way of the Rabbit river.

Q. I didn't ask you whether conditions were such that they would, I asked you of the fact as to whether they did or not, and the first year that you have any knowledge that they did. I am not asking you for theories or opinions, I am asking you facts within your knowledge.

A. And I am answering you just as you asked them.

Q. All right, why don't you do that?

A. The first year I can remember was in the summer or spring of 1896.

Q. The summer or spring of 1896?
A. Yes, sir.
Q. You have actual personal knowledge that that year the waters overflowed from the Mustinka basin over into the Rabbit basin?
A. Yes, sir.
Q. What time of that year?
480 A. In the springtime or in the early summer.
Q. What do you mean by that?
A. I mean by the last—by May or June.
Q. At what point did they show overflow?
A. They overflowed at the point indicated on the map, known as Complainant's Exhibit 6, I believe.
Q. You mean, at a point, the apex of the northerly bend of the Mustinka river in Section 1, Township 128, Range 46.
A. I mean at a point near the southeast corner of Section 1, Township 128, Range 46.
Q. That was subsequent then to the construction of the first Mustinka ditch?
A. No, sir.
Q. When was the first Mustinka ditch constructed?
A. Between the years 1894 and 1896.
Q. How much of it was constructed in 1894?
A. I couldn't state.
Q. How much in 1895?
A. I couldn't state.
Q. How much in 1896?
A. I think it was finished in 1896.
Q. What time in 1896?
A. I wouldn't say.
Q. About what time?
A. I couldn't say.
Q. You don't know anything about that?
A. Not about the exact date of finishing the ditch.
Q. Had the waters prior to the spring of 1896 ever overflowed from this point in this Section 1 north into the Rabbit river?
A. I have no personal knowledge other than the indications on the surface, and the surface would indicate that they had
481 frequently overflowed.
Q. There is a very well defined channel leading from this Section 1, where it is crossed by the Mustinka river, the old Mustinka river, over to the north towards the Rabbit river?
A. Yes, sir.
Q. How large a channel is that?
A. It was a channel about where it leaves the Mustinka basin, about 30 to 40 feet wide on top and from two to three feet deep.
Q. And where is that with reference to the point where the bend of Section 12, Township 128, Range 41, flows easterly across the line
A. It leaves the old Mustinka channel near the northeast corner of Section 12, Township 128, Range 36, flows easterly across the line between Sections 1 and 12 near the corner of Sections 1, 6, 7 and 12; thence it flows northerly and slightly to the east, crossing the line

between Sections 1 and 6 about three-quarters of the way up to the northeast corner of said Section 6; thence northwesterly and northerly as indicated on the map.

Q. And into what is now the county ditch which comes down through what is called the Tintah slough?

A. Yes, sir.

Q. Now, are you familiar with the residence of Mr. Tesky there on Section 1?

A. Yes, sir.

Q. What direction is this channel from his house?

A. His house is about 40 rods nearly east from the southeast corner of Section 1. The channel is as I described it, crossing the line within 60 feet of the southeast corner of Section 1.

Q. What dirdction is this channel from his house?

A. It is southeast, east, northeast, and north; it flows northerly——

482 Q. It crosses the road which direction from his house?

A. It crosses the north and south road east of his house.

Q. About how far east of his house?

A. About 40 or 50 rods.

Q. Is it at a point that is marked by a culvert or cement bridge at this time?

A. No, sir; there is a culvert in there, a dike has been built along the road to shut off the waters flowing into the Rabbit river. That dike was washed out in 1916, and they put in a culvert; the culvert washed out and they put in another culvert. There is a culvert is there now, banked up with manure and rocks. The road and both the grades were washed out in 1916.

Q. There is a ditch along the east and west road?

A. Yes, sir.

Q. What is that, a county or judicial ditch?

A. I don't know.

Q. It is not a state ditch?

A. Not that I know of, no, sir.

Q. Do I understand you to say that the waters went across into the Rabbit river at this point in the year 1916?

A. Yes, sir.

Q. And in such quantities that it washed out this dike or excavation from this ditch?

A. Yes, sir.

Q. And then they put a culvert in and it washed that out?

A. Yes, sir.

Q. Then they put in another culvert and washed that out?

A. It is partly washed out and they filled it in with rocks, that has banked it up again.

Q. And the first culvert that it took out, was that carried for some distance to the north with the rush of the waters?

483 A. I don't know how far it was carried; the waters were running through there very strong, a depth of 2½ feet and a good strong flow.

Q. A width of how much?

A. 80 or 90 feet.
Q. A width of 80 or 90 feet and a depth of 2½ feet?
A. Yes, sir.
Q. And with great velocity?
A. Yes, sir; well I wouldn't say great velocity, a good strong flow.
Q. What kind of a culvert?
A. Timber culvert.
Q. I mean, the one that was washed out.
A. As I recall it, I wouldn't be sure about that; when I went there the water was running over the road. It had been washed out, and later there was a culvert in there when I was there.
Q. I asked you about the culvert that was washed out; what kind of a culvert?
A. I couldn't describe that. I passed over it but I didn't notice it particularly as to what kind of a culvert it was. I think it was a timber culvert or bridge.
Q. Wasn't that a 24 inch galvanized iron culvert?
A. I didn't notice the other culvert, the present one is timber.
Q. I didn't ask you about that, I asked you about the one washed out.
A. I have stated I didn't notice what kind of a culvert it was. It was in the road there, I didn't notice what it was.
Q. You say there was a culvert washed out and carried for some distance north?
A. I didn't state that.
484 Q. You know whether that is so?
A. I don't know that it is so.
Q. Do you know whether it is not so?
A. No.
Q. You didn't observe the conditions there very closely.
A. Yes, sir.
Q. But you didn't see that culvert.
A. I didn't examine that culvert, that first culvert, no sir.
Q. I didn't ask you if you examined it, I asked you if you saw it.
A. I knew where it was, but I say I didn't observe it closely enough to tell anything about it.
Q. I asked you if you saw it.
A. And I stated that I saw the location of the culvert.
Q. I didn't ask you if you saw the location of the culvert, I asked if you saw the culvert.
A. I did not see the culvert, that is, I didn't see the material that was in the culvert; I saw where the opening was.
Q. Was there an indication that the waters had gone over to the north through that same channel previous years?
A. A great many indications, yes, sir.
Q. And you say to the best of your own personal knowledge that for at least two thirds of the years since 1896 the waters had gone over at that point at least to some extent in the spring?
A. Yes, sir.
Q. Eroding a well defined channel, how wide did you say?
A. I didn't say that it eroded a channel, nature made the channel there.

Q. Nature made the channel?
A. Yes.
Q. In what way did nature make the channel.
A. Nature made the channel same as it made all natural
485 channels, by the action of water.
Q. That is exactly what I asked you, if it was made by the action of the water.
A. I didn't say it eroded the channel, the channel was there when I went there.
Q. What do you call the washing out and forming of a channel?
A. Eroding is when the water washes out the sides and bottom of the channel; we call that eroding of the channel.
Q. To have an erosion you have to have a channel there in the first place.
A. Yes, sir.
Q. What process do you call the formation of a channel by the action of water? What do you call that in your vernacular?
A. I don't know what you call it other than formation of a channel by the action of the water.
Q. It is not erosion?
A. No, sir; not usually termed erosion. The water trickles over the soil and the current works a channel and if the water washes up sediment and leaves it on the bank and gradually builds up a channel that is not called erosion.
Q. What did you say was the depth of this natural channel to the north there at that point?
A. Two or three feet.
Q. And the width?
A. Oh, the banks slope out, I would say, from 30 to 40 feet for the first mile, and after that it is some places much wider and deeper.
Q. That extends about one mile to the north or northeast.
A. Yes, first this crosses the road, flows northeast, and then north and then northwest and then north.
Q. That is what you call the source of the Rabbit river.
A. Yes, sir.
486 Q. So that the Rabbit river really had its source in the overflow from the Mustinka river?
A. The Rabbit river is really one of the outlets of the Mustinka river watershed. It might better be described—the Mustinka river as having two outlets, one flowing northward and described as the Rabbit river, and the other flowing southward and described as the Mustinka.
Q. When did you first know this locality at this particular point that you have been speaking of?
A. 1896 was the first time I got quite familiar with it.
Q. The year 1896, were you there in the spring of the year?
A. I was there, yes, sir, in May and June.
Q. Was there a considerable volume of water going north at that time?
A. Yes, sir.

Q. Was there as great a quantity of water going over then as you saw there in 1916?

A. Well, there was more; it covered a wider area. 1916 it was diked off.

Q. 1916 there was as much water there but it was not flowing so freely on account of the dike?

A. That is right, yes, sir.

Q. For how long a period in 1916 did the water continue to flow north in this channel that you speak of?

A. I couldn't say; it flowed north until, oh, quite a long time; I wouldn't be able to say just in days.

Q. It would be several weeks or a month, something of that sort?

487 A. Yes, sir.

Q. And that was what part of 1916 that you observed that condition?

A. It was in the spring of 1916.

Q. About what month?

A. In April.

Q. In April 1916?

A. Yes, sir.

Q. And do you think that as large a quantity went over there in 1916 as did in 1896, after the washing out of this embankment or ditch?

A. No, sir.

Q. You don't think it was as great a quantity.

A. No, sir.

Q. But a very substantial quantity?

A. No, it was all confined to that wash-out, and there was not nearly anything like as great a quantity as flowed in 1916 and other years.

Q. What other year, subsequent to 1896, did you observe quantities of water going over there?

A. I was there, that I can remember very distinctly, in 1906, and 1907 and 1908, and there was water flowing over there each of those years.

Q. Well, I asked you about 1896, that was what you testified to first?

A. You asked me what other years.

Q. Yes, but 1896 was the first year that you observed it that you have been testifying about.

A. Yes, sir.

Q. How about 1897, did you see it then?

A. I was there in 1897, but I am not sure that I was there when the water was flowing over. I was there at different times, but the water flowed there generally in any high water stage.

488 Q. I asked you about 1897, what you observed?

A. I am not sure whether I saw it flowing over in 1897 or not.

Q. Did you see the locality in 1897?

A. Yes, sir.

Q. 1897 was a year of severe floods, was it not?
A. Yes, sir, there was fairly high water in 1897.
Q. There was an extremely heavy fall of snow in the winter of 1896 and 1897?
A. Yes, sir.
Q. And would you or would you not say there was an extraordinary amount of flood in that locality in the spring of 1897?
A. I would say there was probably a flood stage in that locality, but I would have to examine the records to be sure about that. I know there was a flooded condition further north in the Red River valley.
Q. I am asking you your recollection, not the record.
A. Yes.
Q. Whether you recollect about water going over there in 1897?
A. I don't recall whether I was there in the flood period of 1897.
Q. And had you any information or did you make any inquiry as to whether water went over there in 1897?
A. No, I don't think I made any inquiries.
Q. Did you observe the general conditions there, so far as flooding was concerned, whether it had gone over in 1897?
A. Yes, sir.
Q. And what was the result of your observation, what would you say as to the fact?

A. The general condition was that that area from the Mus-
489 tinka there, in all seasons that I have been there, had the appearance of either having overflowed or was overflowing at the time.

Q. You haven't yet answered my question. Did you observe conditions indicating to you that as great a quantity of water—I will put it that way—had gone over in 1897 as had gone over in 1896?

Mr. Bronson: That wasn't your question.
Mr. Palmer: I will ask that question.

A. I stated before I don't recall being there in the flood period of 1897.
Q. 1898, were you there in the flood period?
A. I don't think so.
Q. So you know nothing about that year, so far as your personal knowledge is concerned?
A. No, sir, only just from indications on the surface.
Q. 1899, were you there?
A. No, sir, not that I know of; I can't recall.
Q. 1900, were you there?
A. Yes, sir.
Q. What season of the year?
A. During the summer or late in the summer of 1900.
Q. Did you see any indications of the water having gone over in the year 1900.
A. Yes, sir; there was always indications there that the water had gone over, but when I was there in 1900 it was a dry time, and there wasn't much water running in the Mustinka ditch.

Q. Were there indications that the water had recently gone over at this point?

A. Yes, sir.

Q. 1901, were you there?

A. I couldn't say the time I was there frequently.

Q. Flood time?

490 A. No, I couldn't say whether I was there in 1901 or not, but I was frequently in that locality after I became state drainage engineer.

Q. 1902, were you there?

A. I believe I was, yes, sir.

Q. What season?

A. I was there in the summer time, I can't give you the dates.

Q. Did you observe any indications to see whether water had gone over the Rabbit river at this point you mentioned?

A. Yes, sir. I stated I never was on the ground prior to the year 1912 that I did not observe indications of water flowing from the Mustinka down the Rabbit?

Q. Would you say that the indications were that as large a quantity had gone over in 1902 as you observed in 1896?

A. I couldn't say as to that now; there were good evidences of water courses down that way.

Q. Were you there in 1903?

A. I believe I was.

Q. Saw the same evidences of overflow?

A. Yes, sir.

Q. Were you there in the flood time?

A. I don't recall that I was.

Q. 1904?

A. I can't pick out those years; I must have been there in 1904——

Q. Were you there in the flood stage?

A. I was there in 1905 and 1906 in flood stage, I can't remember 1904.

Q. In 1905 you say you were there in the flood stage?

A. Yes, sir.

Q. See any water going over?

491 A. It was in the fall of 1905, it was wet and there was considerable water in that locality.

Q. Did you see in the fall of 1905 water flowing over from the Mustinka basin into the Rabbit through this channel that you spoke of in Section 1?

A. I don't recall that I observed it flowing over, but I recall that the conditions were generally flooded.

Q. What was flooded?

A. The land.

Q. But as to whether the water was going over into the Rabbit river, you can't say as to that?

A. I think it must have gone over.

Q. Did you see it go over?

A. I saw it at a high stage and I stated whenever it was at a high stage it flowed over.

Q. Then, whenever you saw water there at a high stage, you saw it flowing over into the Rabbit river?

A. Yes, sir; that is, if I was at that point. I saw it flowing over, and I know that it must flow over.

Q. You know it must?

A. Yes, sir, I know that the elevation of the bottom of the channel of the Rabbit where it leaves the Mustinka is 996 and a fraction, and that the Mustinka river when it gets five feet deep is up as high as that, and when it gets above that it overflows and goes down the Rabbit river. It doesn't have to be very high and the Mustinka river is frequently 8 or 9 feet, and then it is 4 or 5 feet in depth flowing down the Rabbit channel.

Q. If I understand it, those conditions would obtain probably every spring or two-thirds of them?

A. Yes, sir.

Q. In 1906 you say you were there in flood time?

A. I was there in 1896 in the flood time. 1906 I couldn't recall very well, but I was there in those years.

492 Q. Well, do you recall what season of the year of 1906 you were there?

A. No, it is the summer season.

Q. Was the water going over then?

A. I don't remember.

Q. And of course, whether water went over that spring of 1906 you don't know only as you assumed it from the natural conditions there?

A. Yes, sir, I only know that when it reached anything above ordinary stage that it would go over.

Q. Did it reach above the ordinary stage in 1906?

A. In the spring of 1906? I couldn't state now.

Q. In 1907, were you there?

A. I was there in 1907 and 1908.

Q. All right, what season of 1907 were you there?

A. I was there twice when the country was generally flooded, there was complaint from people in there about the flooded condition.

Q. I asked what time of the year you were there in 1907?

A. I can't describe it, it is too far back.

Q. Was it before the waters went off?

A. It was when the waters were up.

Q. Did you see the water flowing over the channel you have described into Rabbit river?

A. Oh, I saw high water there; I don't recall whether I was at that point or not at that time.

Q. The year 1908 were you there?

A. Yes, sir.

Q. What season of the year?

A. In the summer season.

Q. Did you see water flowing over in this channel?

A. I saw high water in 1907 and 1908 and 1909.

493 Q. Did you see the water flowing over into Rabbit river in this channel?

A. I don't recall being at that particular point. It was pretty wet around there and I didn't go there in seasons of high water as there was only one settler living in there as I recall it.

Q. One settler living where?

A. In that, right in there——

Q. Who was that man?

A. Mr. Kreuz.

Q. Tesky living there then?

A. No, sir, not that I recall.

Q. He wasn't living there in 1908?

A. Well, yes, he was there in 1908 but not in the early years I was there.

Q. I didn't ask you, I asked you about 1908, you said there was only one man there; is that what you mean?

A. I mean, when I was there first in the early years. I can just remember one settler living in there; there may have been more but I don't remember any more.

Q. Why do you answer about earlier years when I ask you about 1908?

A. I don't remember just who was living there in 1908.

Q. I asked you if the best of your recollection was that Mr. Tesky was there?

A. Mr. Tesky probably was there, I can't remember.

Q. If he was there, he was living in the same place he is now?

A. I presume.

Q. How long have the buildings been on this Tesky place?

A. I don't know; I haven't kept a record of the farm buildings or the time that the farmers moved in there.

494 Q. Is that Tesky place in this delta zone?

A. Yes, sir.

Q. Was that badly flooded at that time?

A. It was pretty badly flooded in a state of nature.

Q. Under water most of it?

A. At times.

Q. Buildings surrounded by water?

A. The buildings are on a higher elevation.

Q. How deep was the water over the Tesky farm when you were there from 1896 to 1908?

A. The water must have been 2 feet deep in places, parts of it.

Q. On what?

A. Must have been 2 feet deep on parts of it. There is a part of the old channel of the Mustinka that lies across his—or of the Rabbit that lies across his land, and its now a sort of a lake. In that channel, in that basin, the water is probably 4 or 5 feet deep.

Q. It is a sort of a little lake there, as I understand it?

A. Yes, sir.

Q. I asked you about the land generally during the seasons that you were there from 1896 to 1908, how deep were the waters on this Tesky farm?

A. In wet seasons the water, I stated before, would be two feet deep on parts of it.

Q. In this lake it was 5 feet deep?

A. Yes, sir.

Q. How deep was it in general over the farm?

A. I couldn't exactly say, some parts of it would be out of water when it was dry.

Q. Was there sufficient water on it to destroy its usefulness for agricultural purposes?

495 A. To a considerable extent in wet seasons.

Q. It wasn't in a state of cultivation from 1896 to 1908?

A. Oh, I think a good portion was.

Q. Was it?

A. Yes, sir, some time during that period, I can't remember but it has been cultivated for some time, part of it.

Q. Do you mean to say that the land that was under water 2 feet deep was cultivated?

A. No, I say a part of Mr. Tesky's land was cultivated and a part of Mr. Tesky's land was higher than other parts.

Q. What portion was under water 2 feet deep?

A. The lower portions.

Q. How large an area is that?

A. I couldn't give it to you now.

Q. About how large?

A. A few acres, varying from 10 acres to 25, depending on the stage.

Q. 10 to 25 acres?

A. Yes, sir, probably more at times.

Q. How large a farm do you speak of now, when you sat that 10 to 25 acres were overflowed?

A. I speak of the farm that he has there.

Q. 240 acres?

A. I don't know just what he has.

Q. Was it more than a quarter section?

A. I am figuring on the quarter section he lives on.

Q. The quarter section that Mr. Tesky was living on from 1896 to 1908, 10 to 25 acres was under water 2 feet deep?

A. In wet periods, yes, sir.

Q. How frequently do you mean by your expression 'wet periods?'

A. I mean that about two-thirds of the time since 1896

496 to the present time.

Q. And at least two thirds of the time of the number of years from 1896 right down to the present time, 10 to 25 acres of Mr. Tesky's land was under water 2 feet deep?

A. Yes, sir.

Q. And that was true of 1916?

A. Well, I won't say as to 1916, there was water flowing through there but it was dammed off after a time, I don't know how much of it got under water in 1916.

Q. Now, 1909, were you there?

A. Yes, sir.

Q. What season?
A. In the summer season, I can't give you the dates.
Q. Did you see any water flowing over this channel you speak of?
A. I don't recall.
Q. 1910, were you there?
A. No, I wasn't there in 1910 that I can remember. There were no complaints in 1910 that I recall.
Q. I am not asking you what you remember about complaints; I am asking you what you know of your own personal knowledge. Were you there at this point you have described in the year 1910?
A. Yes, sir, I was there for the purpose of——
Q. I didn't ask you for what purpose you were there.
A. I said I wasn't there in 1910.
Q. 1911, were you there?
A. I was there in 1911, yes, sir.
Q. What season?
A. In the summer season.
Q. What do you mean by that?
A. I mean the season between May and September.
Q. Flood season?
497 A. No, there was no flood in 1911 that I can remember.
Q. See any water going over that channel in 1911?
A. No, sir.
Q. 1912, were you there?
A. Yes, sir.
Q. What season?
A. In the summer and fall.
Q. Were you there in flood season?
A. There wasn't—as I recall, there wasn't any high stage of flood in 1912.
Q. Did you see any water going over this channel into Rabbit river?
A. Not that I can remember.
Q. 1913, were you there?
A. I am not sure; I don't believe I was there in 1913. I was in that locality——
Q. I didn't ask you whether you were in that locality; I asked you whether you were at this point.
A. No, I don't recall being at that particular point.
Q. 1914, were you there?
A. No, sir, not at that particular point in 1913 or 1914.
Q. In 1915, were you there?
A. Yes, sir.
Q. At what time?
A. I was there in the summer, rather late in the summer.
Q. Of 1915?
A. Yes, sir.
Q. See any water going over there then?
A. No, sir.
Q. Was it a pretty wet time?
A. No, it wasn't very wet when I was there.

Q. It wasn't very wet when you were there?
498 A. No, there wasn't any water flowing over there. The water was carried off, there was no water over that point in 1915.
Q. In 1915 you didn't see any water going over?
A. No, sir.
Q. The water was carried off?
A. Yes, sir.
Q. You mean the ditch had carried it away?
A. Yes, sir.
Q. So there wasn't any there at all?
A. No, sir.
Q. And 1916, were you there?
A. Yes, sir.
Q. And you didn't see any water flowing there then?
A. Yes, sir.
Q. The ditch had carried it away, had it not?
A. Yes, sir, it was carrying it away but it broke through the dike and it was overflowing.
Q. You have already described the conditions you found there in 1916?
A. Yes, sir.
Q. So that in the spring of 1916 the ditch was carrying the water away but it was overflowing to the north substantially as you had seen it in the early time of 1896 only not in so great quantities?
A. Very much lesser quantities.
Q. How wide did you say that stream was in 1916?
A. It was overflowing the road about 60 to 70 feet, I believe, maybe a little more, but it was only—it was quite narrow at the bottom so I couldn't say just about what the area was; it was small, anyway.
Q. And the depth?
A. Depth at the deepest place was about 2 to 2½ feet where the culvert was.
Q. How wide a stream did you see there in 1896?
499 A. It was about a half a mile wide.
Q. How deep was that?
A. It was about 2 feet deep or better, at the deepest point.
Q. How much did you see going over there in 1907, how wide a stream?
A. I don't remember seeing a stream going over there in 1907.
Q. 1908, how wide a stream did you see?
A. I don't remember seeing a stream going over there then.
Q. 1906, how wide a stream did you see?
A. I can't recall.
Q. Let me understand you, Mr. Ralph, the only years that you saw water going over there was 1896 and what other one?
A. 1896 and the years prior—from 1896 to 1900, whenever I was in that locality——
Q. I didn't ask you that. You saw water going over there in 1896; what was the next year that you saw water going over there?

A. That wasn't your question.

(Question is read).

A. 1896 and the years prior to 1900, between 1896 and 1900, whenever I was there in that locality in times of high water I saw water going over there.

Q. Now, as I understand you, Mr. Ralph; your answer is that when you saw water going over there, you saw water going over there.

A. Any time I was in that locality, in times of high water or ordinary high water, I saw water going that way.

Q. I am asking you now about the years when you were there in times of high water and when you saw water going over that way.

500 A. I have stated I was there, I remember distinctly being there in 1896, and I remember distinctly being there years after that and seeing indications of high water or high water, but I can't give you the dates, the exact dates, when I was there.

Q. How many years were you there from 1896 to 1916 and saw water going over? Give it in numbers, please.

A. I was there probably every year excepting 1910 and 1911, and I am not— I wasn't there in 1911, and whenever I was there in seasons of ordinary high water I either saw the water flowing over, or if I wasn't close enough to the point I could see that the water had been high enough to go over.

Q. But the only times that you have any recollection of actually seeing the water running to the north in that channel is the year 1896 and 1916?

Mr. Pinkney: We object to that question as assuming a state of facts not testified to by the witness.

Mr. Palmer: Q. That you call to your memory?

A. The only time I can fix the years, but I have seen it at other times.

Q. How many other times?

A. I couldn't state.

Q. About how many other times?

A. Probably five or six times that I have been there that I have seen the water flow over there but I couldn't state just the years. I know that it was an outlet of the waters from the Mustinka basin and I know that it flowed over there all these years but I can't tell you just the dates.

Q. You simply assume it. Did you talk with Mr. Tesky or Mr. Krenz or Mr. Newman or any of the men who live there?

A. No, sir, Mr. Tesky hadn't been there very long.

Q. Have you ever asked any of those residents there who live on the ground, Mr. Tesky or Mr. Newman or Mr. Krenz, any-

501 thing about how frequently that water went over there?

A. I talked to them about it.

Q. And did they tell you that those years that you were not there that the water had gone over?

A. Mr. Krenz told me that every year before that Mustinka ditch

was put in, that the water flowed in there and he believed that fully two thirds of the water that came down the Mustinka basin passed off that way and since they have put in the dike they have flooded the water back on his land, and kept the water from going over the Rabbit.

Q. Didn't Mr. Krenz tell you on the contrary, Mr. Ralph, that it was two thirds of the water that went around the bend of the old river after the construction of the ditch and one third that went through the cut-off?

A. No, he told me that two thirds of the water went down the Rabbit river, he believed, and the balance went down the old channel.

Q. Mr. Newman told you that?

A. I didn't talk to Mr. Newman.

Q. Mr. Tesky told you that too?

A. No, sir.

Q. Did you measure the velocity of this stream that you saw there in 1896?

A. I determined the velocity.

Q. How did you determine it?

A. By mathematical process.

Q. What did you use, a current-meter?

A. I used Kutter's formula for determining velocity.

Q. What was the velocity of the stream you saw there in 1896?

A. I don't recall now, something about one foot per second.

Q. Did you determine the velocity of the stream that you
502 saw there in 1916?

A. No.

Q. Did you determine the velocity of the stream that you saw there at any other year than 1896?

A. I only determined it by calculations.

Q. What velocity did you find it in other years?

A. Well, when the water was at flood stage, as I stated, it had a velocity, as I remember, about one foot per second.

Q. What year was that?

A. Years of flood stage.

Q. Can you give the years?

A. I stated 1896 was one year and several other years, but I can't give you the years.

Q. Was it about the same velocity in those other years?

A. It was in a state of nature, yes, sir.

Q. When you were there in 1896 did you see the water going from the Mustinka basin northward into the Rabbit basin at any other point than this point in Section 1 that you have described?

A. No, sir, that dike dammed it off, it couldn't get over the dike.

Q. What dike?

A. That dike along the south side of Section 1 and Section 6.

Q. What sort of dike is that?

A. It is a dike about 2½ feet high.

Q. What is it, a county ditch?

A. A ditch bank, yes, sir.

Q. Is is a county or judicial ditch?

A. I said I didn't know.
Q. When was that ditch put there?
A. I couldn't say, 1915, I believe; I couldn't say just when
503 it was finished.
Q. 1915?
A. I think it was there in 1915.
Q. I guess you didn't understand the question?
A. When was the ditch put there?
Q. I asked you when you were there in the year 1896, did you see the water going over from the Mustinka basin into the Rabbit river at any other point than Section 1?
A. The water flowed over in 1896 not only at the — in Section 1, but further east than that.
Q. Did you see the water going over at any other point in this Section 1 than this place east of Mr. Tesky's house in the year 1896?
A. Not in Section 1 but in Section 5, Section 5 and 6.
Q. West of Mr. Tesky's house is the river, the old Mustinka river?
A. Yes, sir.
Q. And it follows a bend around to the north?
A. Yes, sir.
Q. And approximately 160 rods to the west of Mr. Tesky's house there are some buildings owned by Mr. Krenz at the present time and were there in 1916?
A. West of Mr. Tesky's?
Q. Yes, Mr. Tesky's house. I don't mean a dwelling house, I mean a barn and a granary?
A. I don't know as to that.
Q. Did you see in 1916 the water going over into the Rabbit river at a point about a half mile west of Mr. Tesky's house?
A. I didn't see it but it may have gone over there.
Q. Why do you say it may have gone over there?
A. Because the banks are about low enough for the water to pass over at a stage of 1,000 feet, which was the stage that the
504 water reached at that point.
Q. And your best judgment would be there was another stream of water going north at that point into the Rabbit river?
A. No, sir, I wouldn't say that; it may have overflowed some but no stream.
Q. You didn't go over there to see?
A. I was over there many times.
Q. I mean, the spring of 1916?
A. I wasn't over there at the highest flood stage.
Q. You were not?
A. No, sir.
Q. I will continue to ask you about the year 1916, so there won't be any confusion about that. Did you see, aside from this Section 1, the water going over into the Rabbit river at any point other than this?
A. Yes, sir.
Q. Where?
A. In 1916? No, I did not.
Q. And did you make any inquiry as to whether there was any water going over at any other point?

A. No, I don't recall that I did.

Q. Did you see any indications at any time in 1916 that water was going over from the Mustinka river into the Rabbit river at any point easterly of this point in Section 1?

A. No, I did not.

Q. In 1896 when you were there, did you observe any water going north into the Rabbit river easterly of this point in Section 1?

A. No.

Q. Did you ever see any water going over at any time into the Rabbit river at any point easterly of this Section 1?

A. No.

Q. Did you ever examine the ground in Sections 11, 12, 14, 13, in Township 128, of Range 45, to see whether there were in-
505 dications of the water having gone from the Mustinka basin north into the Rabbit river basin?

A. Well, it would have to pass——

Q. Just answer my question; did you ever examine the ground there?

A. Yes, sir, I have stated that is along the line of the old Mustinka state ditch.

Q. Yes, it is north.

A. Yes, that is low land along there.

Q. Let me include in that, so as to be sure that I cover all that low land, Sections 13 and 12, of Township 128, Range 45, and Sections 7 and 18, in Township 128, of Range 44. My question is did you ever examine that ground to see if there were any indications of the water having gone from the Mustinka basin north into the Rabbit basin?

A. There were indications that it passed north in Sections 8, 9 and 7 and then the sections south of that, Sections 18, 17 and 16.

Q. And 15?

A. I don't remember whether the water passed north——

Q. What were those indications?

A. Well, the old channel of the Mustinka winds around through Sections 16 and 17 and works on northward towards the Rabbit.

Q. What indications did you observe that water—when did you observe these indications?

A. 1896, you are talking about?

Q. 1896.

A. Yes, sir.

Q. What were those indications, were they these flood channels in the ground?

A. Yes, sir.

Q. Where there many of them?

A. The channel of the Mustinka and the channel of Five
506 Mile Creek and the Mustinka had more than one channel; places it had two or three channels.

Q. Aside from those channels of the Five Mile and the old Mustinka, did you see flood channels extending northwesterly on the ground there, northwesterly towards the Rabbit river?

A. There was low marshy land where the water flowed north, especially across Section 5.

Q. And did you observe the land in subsequent years to see whether these flood channels were still there?
A. Yes, sir.
Q. Were they there?
A. Yes, sir.
Q. And they are there yet?
A. Yes, sir.
Q. Did you see water passing through those in 1916 when you were there?
A. No, sir.
Q. Did you go there?
A. Yes, sir.
Q. What time?
A. During the summer.
Q. Did you see any water there going north at all?
A. Not going north, no, sir.
Q. Or northwest?
A. Went west in Section 5.
Q. What did it go into?
A. It went into the Mustinka river and flowed across the road into the Rabbit river, across the dike.
Q. Further to the east, are you familiar with a gentleman there by the name of John H. Hanson?
A. No, sir.
Q. You don't know where his place is?
A. No, sir.
507 Q. I believe he lives on Section 14, Township 128, Range 45. Take that area in and around Section 14; did you see flood channels there extending northwesterly to the Rabbit river?
A. No, I don't recollect any.
Q. Did you ever examine that ground to see whether they were there?
A. I traveled over it.
Q. How recently have you traveled over it?
A. I have traveled over it a week ago.
Q. No trace or sign of any flood channels there at all of any water having gone over there?
A. I didn't observe any. The water may have gone north there in a state of nature but there are no channels like I noticed.
Q. There are some indications that the water has passed to the north or northwesterly at that point?
A. Yes, sir, but it doesn't now, there is a dike along there.
Q. Well, there is no dike—there is a ditch there, you mean?
A. Yes, sir, and a dike.
Q. How long has that ditch been there?
A. I don't know, two or three years.
Q. That is not a state ditch?
A. I don't know, I stated.
Q. Don't you know anything about state ditches? I thought you were state engineer for years.

A. Yes, sir. I don't think it is a state ditch; I think it is either a county or judicial ditch.

Q. When was it built?

A. It was built prior to 1916.

Q. Do you know how long?

508 A. About 2 years ago, I would say, 2 or 3.

Q. Do you know whether or not prior to that time, the water flowed northwesterly from Sections 14 and 13 into the Rabbit river basin?

A. There was a graded road along there and I don't know to what extent that road prevented the water from flowing that way.

Q. If there was none flowing there the road wouldn't prevent it?

A. That is true.

Q. I asked you if there were indications that the water did, in a state of nature, go that way.

A. I say there was low places across 6 and I don't know but across 4, indicating that the water flowed northwest.

Q. How about 14 and 13?

A. I wouldn't say.

Q. 11 and 12?

A. I wouldn't say as to 13 and 14.

Q. Did you examine the ground?

A. Yes, sir.

Q. Found no flood channels?

A. I don't recall any.

Q. No indications the water had passed to the northwest?

A. There are some farmers occupying those lands and I don't know, I don't remember seeing any flood channels in that locality.

Q. Did you talk with those farmers?

A. I don't remember talking with them about flood channels.

Q. Did you talk to them in regard to whether the water went northwesterly there?

A. I have talked to a great many farmers in there and listened to their complaints.

Q. Did you understand the question I asked you?

509 A. Yes, sir, I answered it.

Q. What is the question?

(Question is read by reporter.)

A. Yes, sir, I talked to a great many farmers in there as to flood conditions.

Q. And as to whether the waters went northwesterly at that point?

A. At what point?

Q. Sections 14, and 13, and 11, and 12.

A. Sections 14, 13, 11 and 12 is not a very fine point. It covers an area of two or three square miles.

Q. Four square miles. If you talked to a great many farmers you talked to farmers in a considerable area?

A. Yes, sir.

Q. What information did you get about that?

A. I don't recall getting any information about the water flowing northwest in Sections 13 and 14.

Q. Or at any points easterly of Sections 5 and 8?

A. The slope of the country is northwest and it is quite probable that the water would flow northwest in that locality.

Q. When you were there in 1896, what did you observe as to the water going across at that point last mentioned or in that area?

A. I don't recall the water going across there. The condition was very wet and the water was flowing across where I described in Section 1 and 6 but I don't recall anything about the general low land through that locality.

Q. And any of the other years that you were there, did you observe any water flowing to the northwesterly at the points that I mentioned last?

A. No, I don't recall.

Q. Your answer to the hypothetical question propounded assumes that the water which would naturally have overflowed into the Rabbit river and been carried off by it was by reason of this Mus-
510 tinka ditch diverted from overflowing into the Rabbit river and was carried down into Traverse Lake instead?

A. That was one of the reasons.

Q. That was one of the points on which you based your answer to the hypothetical question?

A. Yes, sir.

Q. Now, if it be true, Mr. Ralph, that the usual amount of water went over into the Rabbit river in the spring of 1916 at any or all of the points that I have mentioned here, that part of your theory would fail, wouldn't it?

A. If that were true.

Q. By what means was this overflow into the Rabbit river in the spring of 1916 diverted and taken down into the Traverse Lake?

A. By means of the construction of the Mustinka state ditch and by means of the diking of the Rabbit river outlet, that was about all.

Q. It is about all, I want the whole thing.

A. Further than that, the destruction of the detaining basin prevented the waters accumulating there.

Q. What destroyed this retaining basin?

A. The Mustinka state ditch was cut through it.

Q. I assume it was part of your other answer then?

A. Yes, sir.

Q. It doesn't add anything to it?

A. There is two parts of the Mustinka ditch, the lower and upper, the old and the new.

Q. Let me understand you; the cause of the diversion of this overflow of the Mustinka river in the spring of 1916 and the spring of 1915 was this Mustinka state ditch and the diking of the points of overflow into the Rabbit river?

511 A. That is true; of course, the larger cause was the Mustinka state ditch. The dike—after you cut the Mustinka state ditch there and leave those two channels open there wouldn't be not nearly as much water go down the Rabbit river.

Q. You ascribe it to the Mustinka state ditch and the dikes?

A. Primarily.

Q. What part of that diversion do you, in your answer to the hypothetical question propounded, ascribe to the Mustinka state ditch?

A. I believe that if the Mustinka state ditch had not been constructed down there that the stage of water in Lake Traverse would have been from a foot to a foot and a half less than it was.

Q. You ascribe this one foot to a foot and a half of water in Lake Traverse to the Mustinka state ditch and the other one-half foot you ascribe to the diking of the overflow?

A. Well, the diking off took care of some of the water in 1916 but I don't know just how much it was, it was a small part of it.

Q. You took that into consideration, however, in answering the question?

A. Yes, sir; that in connection with the ditch, of course.

Q. If there had been dikes put across there, whether any ditch had been dug or not, the dikes would more or less have obstructed the overflow into the Rabbit river, and would in fact have obstructed it just as much as it did after the ditch was built?

A. Well,——

Mr. Bronson: We object to that as incompetent, immaterial and irrelevant.

Mr. Palmer:

Q. Just tell me what dikes you refer to.

A. Dike along the south line of Sections, 4, 5, and 6, in Township 128, Range 45, and along the south line of sections
512 7, 8 and 9, Township 128, Range 45.

Q. And what do you mean by 'dike'?

A. I mean an embankment constructed for the purpose of holding back water.

Q. And there are banks constructed along these lines that you have spoken of for the purpose of holding back water?

A. Yes, sir.

Q. Where do those banks come from?

A. From the ditch, the earth was taken from the ditch.

Q. What ditch?

A. The ditch along the dike.

Q. Not from the Mustinka state ditch?

A. No, sir.

Q. Then there is both a dike and a ditch along these lines that you have described as a dike?

A. Yes, sir.

Q. Which side of the ditch is the dike on?

A. The north side.

Q. On both those ditches?

A. Yes, sir.

Q. They are in the form of roads, are they?

A. Yes, sir.

Q. The earth excavated from these ditches has been placed on one side of the road and flattened out in the form of a turnpipe or road or grade?

A. Graded off to make it suitable for travel.

Q. Now, I ask you how much of the flooding of Lake Traverse do you ascribe to those dikes in your answer?

A. I stated that it was not very much—that is, in 1916?

Q. Yes, sir, 1915 and 1916.

A. The dike broke part of the time and the waters were flowing through it. I couldn't state just how much was due to the
513 dike, what proportion was due to the dike and how much to the ditch, but a large part was due to the ditch.

Q. But, so far as the dikes were concerned, they would have prevented just as much water from going over there if the ditch had not been there at all?

A. They would if they had remained unbroken, if the ditch had not been there it is my opinion that dike would have been washed out 1,000 feet.

Q. It was washed some as it was?

A. Yes, sir.

Q. In making your answer, how large an area do you think there was in Lake Traverse in the spring of 1916?

A. There was, what you might call the lake was 41 square miles, and the Bois de Sioux valley was overflowed from Lake Traverse down to a point about two miles below, three miles below Fairmount.

Q. What elevation do you think there was of Lake Traverse in 1916 when the spring broke up, when the waters began to run?

A. Before the spring flood?

Q. Yes, sir.

A. I couldn't state, the waters came up quite rapidly.

Q. What would you say, what did you assume in your answer?

A. I assumed an elevation of about 974 or 973 feet, the elevation is now 973.

Q. What was it in the spring of 1916?

A. I stated I couldn't tell you.

Q. Before the ice broke up?

A. Before the flood came down.

Q. Don't you think there was high water there in the spring of 1916 before the flood came down?

A. I couldn't state just what the stage was.

Q. Did you see the lake?

514 A. I saw the lake when the flood was on, first, in the spring of 1916.

Q. Hadn't you seen it before that?

A. Not in the spring of 1916.

Q. Had you seen it in the fall of 1915?

A. Yes, sir, I saw it in the fall.

Q. How high was it then?

A. I couldn't state, probably 974.

Q. Were those lands in the Bois de *D*ioux valley flooded in the fall of 1915?

A. They were wet in the fall of 1915.

Q. From what?

A. From the overflow of Lake Traverse in the summer, I wouldn't say as to just how late in the fall.

Q. You say that 974 was the normal level of Lake Traverse?

A. I would place it at that in the winter.

Q. At 974 you don't mean to say that it floods these lands in the Bois de Sioux valley?

A. No, but if they had been flooded in the summer owing to the water running slowly down the Bois de Sioux, they might remain flooded in the fall.

Q. Don't you think if they were flooded in July and August, 1915, and the ordinary flow of the Bois de Sioux river, that they would have drained out by the time they froze up in 1915?

A. I doubt it very much; if those lands were thoroughly flooded and saturated during the months of June, July and August, I doubt very much if they would drain out sufficiently by the time they froze up and become dry.

Q. Well, the surface water would be off of them?

A. To a considerable extent, yes, sir.

515 Q. If the lake fell in the fall of 1915 to 974, its normal level, those lands would have been free of surface water in your opinion?

A. Some of them, yes, sir.

Q. What portion of them?

A. I couldn't state just exactly, all the high lands and all those back from the river would be relieved of surface water or might be wet.

Q. Were they in fact relieved of surface water in the fall of 1915?

A. I wouldn't say as to just how late in the fall, I don't remember seeing those lands after September, and if I saw them in the early part of September and in July and August they were quite wet and they were flooded.

Q. Well, I think the testimony given here is to the effect that they were, they froze up in a flooded condition of water. That would indicate to you that the lake in the late fall or at the time it froze up in 1915 was higher than 974?

A. Yes, sir.

Q. What do you think it was?

A. It might have been higher and still run down during the winter, and I don't know but what it was higher than 974.

Q. Would the water run out of that lake in the winter time?

A. Yes, sir, some.

Q. Where?

A. The Bois de Sioux.

Q. Is the Bois de Sioux open in the winter?

A. I don't know as it is open but the water flows under the ice; it may freeze solid some years.

Q. We will assume it was 974, may we, for the purpose of our question, in the spring of 1915?

516 A. You may do that, I have no objection.

Q. What would you say was the area of Lake Traverse at 975?

A. It was about 30 square miles.

Q. I thought you said it was 41.

A. I didn't say anything of the kind.

Q. When was it 41?
A. When it was at 977.
Q. 975 you think it would be 30 square miles.
A. Yes, sir.
Q. That would be 19,200 acres?
A. 640 acres in a square mile, if you calculated right——
Q. I take it that, as the lake raises in level, it would be of correspondingly greater area?
A. Yes, sir.
Q. So that, as soon as it raised one foot, it would be several square miles larger?
A. Yes, sir.
Q. Well, say that the average elevation would be 976, 975 to start with, and 977 when the flood was on; that would be about 35 square miles?
A. I would say about that.
Q. That would be about 22,400 acres? Now, how many acres do you think were inundated in this yellow shaded area in the spring of 1916?
A. About 10,000 in North Dakota and about 9,000 in South Dakota.
Q. And that would be to the average depth, say, two feet?
A. Well a foot and a half.
Q. There would be then, 41,400 acres that you think the water was rised on in the spring of 1916 to the depth of one and
517 one-half feet by this Mustinka ditch that would naturally have gone over into the Rabbit river or stayed on the land there?
A. The water was not raised on there, it was raised on Lake Traverse, the rest of the water was overflow water and had a slope on its surface, it was the same as the water in the river.
Q. If it had a slope on its surface which way did that slope go.
A. To the north.
Q. How much of a slope do you think it had?
A. Had a slope of about—well it was greater in some places than others, where the channel was narrow it was greater.
Q. Well, average?
A. Had a slope of from five-tenths of a foot to a foot, perhaps more below Fairmount.
Q. To a mile?
A. Yes, sir.
Q. What is the discharging capacity of the Bois de Sioux river at this point below Fairmount?
A. At low water stage?
Q. No, at high water stage, at the time these floods were on?
A. It was about between 1,400 and 1,500 second feet.
Q. That is, you mean, that number of cubic feet of water would pass through there in a second?
A. Yes, sir.
Q. So was that in addition to the covering of 41,400 acres to the depth of a foot or more, you have got to take into consideration a

discharging capacity at the north end of between 1,400 and 1,500 cubic feet per second?

A. Yes, sir.

518 Q. And you think, Mr. Ralph, that that was all done by this Mustinka ditch diverting waters that would otherwise have gone into the Rabbit river, and taking water that would have settled upon this delta zone and remained there?

A. I say that the stage was raised by both causes, I didn't say it was all done.

Q. Then you say that the stage was raised, of the water in Lake Traverse, of one foot by that cause?

A. Yes sir,

Q. And the other foot which you say the lake was raised you ascribe to other causes not connected with the Mustinka ditch?

A. There were other watershed waters that flowed into Lake Traverse than the Mustinka.

Q. There are other watershed waters that flow into Lake Traverse aside from the Mustinka drainage area?

A. Yes, sir.

Q. And you ascribe one foot of that rise of Lake Traverse in the spring of 1916 to those other watersheds?

A. I would say that the Mustinka watershed was the cause of at least one foot, from a foot to a foot and a half, the change in conditions there.

Q. What was the cause of the other foot?

A. The run-off from other watersheds helped to increase the stage in Lake Traverse.

Q. Would you ascribe one foot to the other causes?

A. I would say that the lake would not have reached the stage that it did reach and would have probably been from a foot to a foot and a half lower had the Mustinka river been in its natural condition.

Q. Then one foot of that two feet raise in Lake Traverse you ascribe to causes other than the Mustinka river watershed?

519 A. I haven't stated so.

Q. You ascribe one foot of that raise to this ditch?

A. Yes, sir, to changed conditions.

Q. What do you ascribe the other foot to?

A. There might be 3 feet. You say a stage of 974-975; it was due to the general spring freshets.

Q. The natural spring freshets in watersheds other than this?

A. Including the Mustinka——

Q. And including the natural raise of the lake from the Mustinka?

A. Yes, sir.

Q. Then only one foot on those 41,400 acres and also taking into consideration the discharging capacity of the Bois de Sioux at the north end of this flooded area, you ascribe to this Mustinka ditch taking water that would naturally have gone over into the Rabbit river or remain upon the lands in the delta zone?

A. Yes, sir, one foot to one and a half.

Q. One foot to one and a half?

A. Yes, sir.

Q. What part of this Mustinka ditch diverted water that would otherwise have gone over into the Rabbit basin?

A. The extension that was built in 1913 and 1914 and 1915.

Q. What part of the extension?

A. The whole extension diverted the water and carried it off.

Q. Diverted the overflow of water over into the Rabbit river?

A. It carried off waters that would otherwise have gone down the Rabbit river basin or the channel.

520 Q. I asked you what part of that ditch had the effect of diverting water.

A. I stated to you that it was the part constructed, the lower part constructed.

Q. Now, which part of the new part constructed had that effect?

A. The whole ditch.

Q. That is, if no other part—or, we will say, the part of this Mustinka ditch that was constructed down here in Sections, we will say, 5, 7 and 13 in Township 127, of Range 47, that helped to divert water from the Rabbit river?

A. Yes, sir.

Q. There wasn't any one part of that ditch that helped to divert that water more than the other?

A. The upper part, of course.

Q. What part of the upper part?

A. The upper three or four miles might have diverted all the water, the lower part.

Q. That was mainly then this cut-off ditch, cutting off this detour to the north?

A. That contributed the most, I would say, of any part of the ditch, but the ditch as a whole drained it off.

Q. I asked you what part diverted the water from the Rabbit river basin?

A. If it was to divert it, it would drain it off.

Q. Which part diverted it?

A. I stated that the cut-off ditch.

Q. Now, if that cut-off ditch had not been constructed and if the waters had continued from the point of the intersection of that cut-off ditch with Twelve Mile creek, if the waters had continued to go north and follow this bend westerly in Sections 12 and 7 and 11, they would have gone over into Rabbit river the same as the- naturally did?

521 A. Not the same but to some extent. The waters, as I have stated before, were transferred further down the Mustinka after the upper Mustinka ditch was put in.

Q. If the new Mustinka ditch had started down here on Section 23 at the confluence of the cut-off ditch with the main Mustinka, if it had started there, do you think that it would have diverted the water from going into the Rabbit river at this point in Sections 7 and 12 and 1?

A. Yes, sir. The first damage, the first interference with the flow of water was caused by the original Mustinka ditch; that had the

effect of destroying the detaining basin and transferring part of the waters lower down on the Mustinka.

Q. I asked you if the new part of the Mustinka ditch had been started above the point of juncture of the cut-off ditch with the main Mustinka in Section 23, Township 128, of Range 46, do you think it would have diverted that water that went over into the Rabbit river?

A. No, sir.

Q. Then it was that portion of the Mustinka ditch from this Section 23 westerly to its source that diverted that water?

A. It was the whole ditch that diverted the water.

Q. I mean it was that part primarily that diverted the water?

A. Well, it is pretty hard to separate a channel that is giving water and say which part it was.

Q. You say if the part below Section 23 had been constructed as a separate project without the rest of it above, that it would not have diverted the water?

A. Would not, taken separately.

Q. What is the carrying capacity of the old section of the Mustinka, say the first six and a half miles, the carrying capacity when it is full?

522 A. Before the new ditch was put in? It is impossible to determine that, for the reason that the old ditch overflowed and the water spread out over the banks covering the delta zone.

Q. Now, if the old ditch overflowed after it was full it didn't have any effect upon the flood waters, did it, Mr. Ralph?

A. Yes, sir.

Q. You take a ditch in a territory and fill it full of water to the banks and there are flood waters all around it, a large area, and that ditch diverts the flow of those flood waters?

A. If it carries those waters off faster than they would go in a state of nature.

Q. I know, but so far direction they were going, if they were traveling northwesterly as you say the land lies there, do you think that ditch would divert them and prevent them from going there after the ditch was constructed?

A. I didn't say it would, but I say it would transfer the waters from the zone down to the Mustinka river.

Q. You didn't say it would prevent the natural flow of the flood waters after it was full?

A. No, sir.

Q. What is the carrying capacity of the old section of the Mustinka ditch with the new part constructed?

A. It is hard to determine that because the ditch is in bad repair and it overflows.

Q. How long has it been that way?

A. Ever since it was constructed.

Q. 20 years?

A. Yes, sir. It carries considerable water. It is constructed through quite a ridge of land before it reaches Twelve Mile Creek.

Q. But it is in bad repair and doesn't do very good work?
523 A. It has washed out to a considerable extent and is enlarging at the lower end and has been enlarging for several years.

Q. What is its carrying capacity, to the best of your ability?

A. I don't know.

Q. Can you make any estimate on that? Did you ever make any estimate on that?

A. It is impossible to determine the carrying capacity of the flood stage because it is so irregular that I know of no point where a suitable cross-section of the ditch could be secured to measure the carrying capacity.

Q. Did you ever measure the velocity of the water in it?

A. Not in that old ditch, no, sir.

Q. If you don't know the carrying capacity or the velocity of the flow of that old Mustinka ditch, Mr. Ralph, how do you base your opinion upon it that it raised the waters of Lake Traverse a foot?

A. I didn't so state.

Q. You don't mean to so state?

A. I never stated so.

Q. What is the carrying capacity of . new cut-off ditch, the cut-off section of it over to this juncture with the main Mustinka in Section 23, Township 128, Range 46?

A. It has a carrying capacity when running full of 2400 cubic feet per second.

Q. 2400 second feet?

A. Yes, sir.

Q. You assume that it is running full to the top?

A. Yes, sir.

Q. And at what velocity do you assume it is running?

A. At a velocity of 4.77 feet per second.

Q. Did you measure that?

A. I calculated it, yes, sir.

524 Q. What did you calculate it with?

A. With Kutter's formula.

Q. What is that?

A. That is a formula for calculating the velocity of streams.

Q. How do you do it?

A. By mathematical process.

Q. Tell us the mathematical process.

Q. The ditch has a sectional area of 504 square feet and it has a slope of .0004, it has a hydraulic radius of 7.9 and the factor "n" of co-efficient of roughness has a value of 4.77 feet per second multiplying the area by that you get 2404 cubic feet per second.

Q. What area did you assume?

A. I didn't assume anything, I measured the area.

Q. What area did you take to multiply by?

A. 504.

Q. Where do you get it.

A. I got it by measurement.

Q. Of what?

A. Of the ditch's average width of 42 feet and depth of 12 feet.
Q. Where did you get that "n"?
A. I got that, that is a coefficient that we use for calculating ditches under similar conditions to that ditch.
Q. What does it represent?
A. It represents the resistance of the flow of water?
Q. What causes resistance to the flow of water?
A. The irregularity of the banks and other irregularities, rocks and grass and vegetation.
Q. And you simply assumed the usual amount of resistance to the flow oif water that you find in land of like geology, formation and vegetation?
525 A. I am not talking about the lands, I am talking about the ditches.
Q. Doesn't that ditch run in land?
A. Yes, sir, but it is the ditch, the flow of water in the ditch, the channel.
Q. Doesn't the land have anything to do with the resistance of the flow?
A. I am dealing with the sides and bottom of the ditch.
Q. Rocks?
A. Yes, sir.
Q. Sand?
A. No, not necessarily sand.
Q. Clay?
A. Yes, sir.
Q. I say, that is where you get this coefficient?
A. Yes, sir.
Q. And you assumed that the ditch has an average width of 42 feet and an average depth of 12?
A. At flood stage.
Q. When you were there in the spring of 1916, was that cut-off running full?
A. Yes, sir.
Q. Clear to the top?
A. At some places it had a depth of about 12 feet.
Q. And at other places?
A. Lower end it didn't have as great a depth, it spread out.
Q. Did you also observe water flowing around the northerly bend along the course of the Mustinka river?
A. Yes, sir.
Q. Was that flowing full?
526 A. Yes, sir.
Q. Clear to the top?
A. Yes, sir.
Q. And overrunning to the north?
A. Yes, sir.
Q. Did you ascertain the carrying capacity of the old river?
A. Yes, sir.
Q. What did you ascertain the carrying capacity of the old river?
A. 1848 feet per second.

Q. How did you get that?
A. By mathematical computation.
Q. Tell us what it was.
A. I found the sectional area was 800 square feet.
Q. How did you get that?
A. By measurement.
Q. What did you measure?
A. Cross-section of the ditch.
Q. How wide was it, the average?
A. 140 feet on an average on the top and 50 on the bottom and the sectional area was 800 square feet.
Q. What did you figure the average width?
A. Well, I didn't figure the average width. I divided it up into sections and got the correct sectional area.
Q. Where did you get the 800, what did you multiply?
A. I multiplied four or five different sections of the cross-section of the ditch, triangles and rectangles, and added them together and got the full area, which was 800 square feet.
Q. What velocity?
A. 2.3 feet per second at flood stage.
Q. That was about half of what it was flowing in the cut-off?
A. Yes, sir.
527 Q. Now, how did you get that velocity? You say you took this 800?
A. Yes, sir.
Q. And did what with it?
A. Took the 800 and I used it as a factor in the computation.
Q. What other factors did you use in the computation?
A. I assumed the faction .0002 as the slope of the old channel.
Q. Just half what the slope was in the ditch?
A. Yes, sir.
Q. What else did you use?
A. I used the coefficient "n" of .025.
Q. Just the same as you did in the ditch?
A. Yes, sir.
Q. You didn't measure that velocity of either of those flows with a current-meter, Mr. Ralph?
A. No, sir.
Q. What did you think was the flow of the water or did you make an estimate of the flow of the water in this stream to the north, to the Rabbit river?
A. I didn't make any estimate.
Q. And can you give us an opinion as to how many second feet were flowing in that direction?
A. It might be 200 or 300 at the greatest flood stage.
Q. 200 or 300?
A. There might be that much but I doubt whether there was that much, probably not more than 200.
Q. Well, the amount going around the curve and over into the Rabbit and that going into the cut-off ditch was very near equal?
A. A little more going through the cut-off.

Q. A little more going through the cut-off than there was through both of the other points?

528 A. Yes, sir.

Q. How many days in the spring of 1916 did that cut-off ditch run full, this discharge as you have called it?

Q. I couldn't state, it was highwater for several days.

Q. How many days did you assume in your answer to the hypothetical questions propounded to you?

A. I assumed that it flowed about ten days.

Q. How many days did you stay there?

A. I was there most of the month of April and then in May and June again.

Q. Did you stay right there through the month of April on that ground?

A. No, sir, in that locality.

Q. What were you doing?

A. Taking surveys.

Q. What for?

A. For the State of North Dakota.

Q. Where else did you make surveys at that time for the State of North Dakota?

A. Down at White Rock and Fairmount and in the country around there generally.

Q. That was for the purposes of this case?

A. Yes, sir.

Q. When did you become state drainage engineer?

A. 1900.

Q. When did you cease to be state drainage engineer?

A. 1913.

Q. This Mustinka ditch, the new part of it, was built under the direction of yourself as state drainage engineer of the State of Minnesota?

A. No, sir.

Q. Whom was it built under?

529 A. Direction of Mr. Willard, acting state drainage engineer. It was started while I was state drainage engineer.

Q. And the plans were made and the project under way under your direction?

A. Made upon the order of the court, not until the court ordered it that we make plans to put in the ditch that way. I was opposed to the construction of that ditch.

Q. You were ordered then by a writ of mandamus to build that ditch?

A. Practically, yes, sir.

Q. You and the other members of the state drainage commission?

A. Yes, sir.

(Defendant's Exhibit 1 is marked.)

Q. I show you Defendant's Exhibit 1. Is that a copy of the proceedings and writ of mandamus pursuant to which the state drainage commission constructed that ditch?

A. Yes, sir, I think that is the order.

Mr. Palmer: We offer it in evidence as part of the cross-examination.

Mr. Pinkney: We object to it as incompetent and immaterial.

Mr. Palmer:

Q. When was the construction of this new part of the ditch begun, Mr. Ralph?

A. In the fall of 1912, as I recall it.

Q. About October 1st, 1912?

A. Yes, about that date.

Q. Was it begun under your supervision?

A. Yes, sir.

Q. What was used in this construction, in the construction of this ditch?

A. A floating dredge.

Q. Operated by steam?

A. Yes, sir.

530 Q. What portion of the ditch was the construction of the ditch begun?

A. At the upper end.

Q. Who if anyone supervised the work for your office?

A. Mr. Willard.

Q. Was he there all the time?

A. No, sir.

Q. Was there anyone there all the time?

A. Well, there was a Mr. Ringdahl, I think he was there.

Q. Mr. William Ringdahl, of Wheaton?

A. Yes, sir, he was there all the time in 1913, as I recall it, but I don't think he was there all the time in 1912, fall of 1912.

Q. At any rate, he was the one who gave the work the continuous supervision from day to day?

A. Yes, sir.

Q. Do you know how far the work progressed in the fall of 1912?

A. No, I couldn't say just now where they hung up for the winter, they didn't dig much in 1912.

Q. About three-quarters of a mile?

A. Yes, I would say about that.

Q. They began, as I understand it, at the juncture of the old ditch with Twelve Mile creek?

A. Yes, sir.

Q. In the northeast quarter of Section 19, Township 128, of Range 45?

A. Yes, sir.

Q. And that is a short distance west of the section corner of the northeast corner of Section 19?

531 A. Yes, sir.

Q. When was the work resumed?

A. In the spring of 1913.

Q. About the 20th of March?

A. I don't recall the date.
Q. Were you state engineer then in the spring of 1913?
A. I was up until about the 1st of May.
Q. About the 1st of May, 1913, that you ceased to be state engineer?
A. Yes, sir.
Q. Were you there during 1913 while the ditch was being constructed?
A. Yes, sir, early in the spring.
Q. Did you go there again that season?
A. Not for the purpose of examining the ditch.
Q. What did you go there for?
A. Well, in my business as engineer, investigating drainage areas and drainage projects, I passed through that country.
Q. You were not at that time employed by the State of North Dakota in the preparation of this suit?
A. No, sir.
Q. Do you know how long the work progressed in 1913 until what time in the fall?
A. No, sir.
Q. About the middle of November, somewhere along there?
A. I think that would be about right.
Q. Do you know how far they got that season?
A. No, they got through the cut-off and down the old channel and west.
532 Q. As a matter of fact, didn't they get down into Section 13, of Township 127, Range 47?
A. I do not know.
Q. Well, did they get down below the railroad bridge?
A. They were down near the railroad bridge, I don't know just which side.
Q. Well, then in the season of 1913 they completed all of the cut-off and down stream some 7 or 8 miles?
A. Yes, sir.
Q. What do you mean by the cut-off?
A. I understand that you mean the upper two miles of the ditch constructed in 1913, 1912 and 1913, which cuts off a big bend of the Mustinka river which flows around to the north.
Q. That is what I do mean, Mr. Ralph; I mean from the point of juncture with Twelve Mile creek near the northeast corner of Section 19, Township 128, Range 45.
A. Yes, sir.
Q. Now, where was this new detaining basin which was created, as you say, after the construction of the first section of the ditch?
A. It was from the railroad track up the Mustinka to and above the lower part of the new ditch near the cut-off.
Q. So that in the season of 1913, if they cut the ditch below the railway bridge northwest of Wheaton, they cut clear through this new detaining basin which you have described?
A. Yes, sir.
Q. And that would let down into Lake Traverse the accumulated waters in that new retaining basin?

A. There was a portion of the railroad that was unfinished and the dredge was in the channel so that it—probably it didn't let it down.

Q. It would go around—if there was much of a flow of water it would go around the dredge, I apprehend?

533 A. I don't know as to that.

Q. What is the character of the land at that railroad bridge?

A. Below the bridge the banks of the stream are higher and the valley is quite narrow. Above the bridge the valley becomes wider and the banks are lower.

Q. Well, that is why this new detaining basin, I think you stated, was created there?

A. Yes, sir.

Q. So that, if they went below the railroad bridge they tapped that detaining basin?

A. I don't know that they did. It is my opinion that the dredge held the water back there because they were working in the channel of the stream and it is a large structure, a boat some 36 or 40 feet wide.

Q. What part of 1913 were you there?

A. I was there early in the spring of 1913.

Q. Did you see any water in this detaining basin of which you speak?

A. No, the dredge didn't come down to the railroad until the spring of 1914, or the fall of 1913.

Q. Well, the fall of 1913.

A. Yes, sir.

Q. When you were there in the fall of 1913, did you see any water in this new detaining basin of which you have spoken?

A. I didn't observe any water there. There was sufficient water to float the dredge and I don't know how much more.

Q. In the spring of 1914, at what time was the work resumed?

A. I don't know.

Q. Were you there in the spring of 1914?

A. I was there through that country in the summer of

534 1914 but as I recall it now I just passed through on the train.

Q. Did you see the dredge at work then?

A. I don't recall.

Q. As a matter of fact, they began work about the 1st of April, Mr. Ralph, in 1914, did they not?

A. I don't know.

Q. How far did they progress with the work in the season of 1914?

A. I understand they progressed as far as their funds would allow them and that they did some work.

Q. Do you know?

A. I don't know just how far, some two or three miles below Wheaton.

Q. So it would be down in some portion of Section 23, Township 127, 47?

A. The dredge was still down there.
Q. In the spring of 1914 were you down to Lake Traverse?
A. Just passing by it.
Q. Was it any higher than usual?
A. I don't recall that it was.
Q. Had the waters gone out of this retaining basin, this new one?
A. I couldn't say as to that, I think they had.
Q. But you did not observe nor did you hear that Lake Traverse was any higher than ordinary that spring?
A. In the spring of 1914?
Q. Yes, sir.
A. Well, the dredge had just gotten to the railroad track.
Q. Don't argue the question. Did you see that Lake Traverse was any higher than ordinary in the spring of 1914?
A. No.
535 Q. Now, in the summer of 1914 were you there?
A. No, sir.
Q. Were you over on to this Bois de Sioux valley in North Dakota?
A. I crossed it.
Q. Did you see any flooded conditions there?
A. No.
Q. Or any unusual rise of the water in the Bois de Sioux river?
A. No, sir.
Q. The fall of 1914, were you there?
A. Yes, across the valley in the fall of 1914.
Q. What valley?
A. Bois de Sioux.
Q. Did you see Lake Traverse then?
A. Yes, sir.
Q. Any unusual rise of the water in Lake Traverse that fall?
A. Not that I can recall.
Q. Any unusual height of the water in the Bois de Sioux river that fall?
A. No, sir.
Q. Or any flooding of the land within the yellow shaded portion in North Dakota?
A. Not that I can recall in 1914.
Q. Early in the spring of 1915 were you there?
A. No, sir; I was there in June and July and August.
Q. Were you down to Lake Traverse early in the spring of 1915?
A. No, sir.
Q. Did you hear of Lake Traverse being any higher than ordinary that spring, early, I mean?
A. I didn't hear, it may have been higher.
536 Q. Well, it may have been lower; did you have any information about it?
A. No, sir.
Q. Did you early in that spring of 1915 see this area along the Bois de Sioux valley in North Dakota, represented here by the yellow?

A. I can't recall just what I saw early in the spring but in the summer, in June——

Q. I asked you about early in spring.

A. I don't recall the condition but if it had been——

Q. Did you see it?

A. Yes, sir.

Q. Was there any unusual height of the Bois de Sioux river?

A. I can't remember that there was.

Q. When was this work resumed on this ditch in 1915?

A. I can't say.

Q. Now, what time were you down to Lake Traverse that summer?

A. In June and July and in August or September.

Q. Now, in June, did you observe any unusual height of water in Traverse Lake?

A. The waters were high in June and, as I stated before, I can't tell just how high. They were not as high in July as they were in the spring of 1916 but there was a flooded condition there.

Q. In June?

A. June and July.

Q. Do you know what date in June or what date in May or June the water began to rise?

A. No, sir.

Q. It has been testified the middle to the latter part of May, 1915, at that time did you see this dredge still in the river?

537 A. I don't recall about the dredge, I presume I saw it, I went by there.

Q. If you saw it, tell where you saw it.

A. Down below Wheaton.

Q. Whereabouts?

A. Where it is now; they didn't dig very much in 1915.

Q. They didn't? See what you know about it. What time in 1915 did they start?

A. I said I didn't know.

Q. You don't know anything about it?

A. I don't know when they started.

Q. How long did they dig?

A. No.

Q. How much did they dig?

A. No.

Q. You don't know anything about it?

A. I don't know anything about it but that the dredge was there.

Q. And yet you say they didn't dig much in 1915?

A. I know the dredge was down pretty nearly where it is now in 1914 so they didn't dig very far.

Q. I thought you said they didn't get past the railroad track only in the fall of 1914?

A. You got another think coming; in 1914 they got down 3 miles below Wheaton.

Q. That is down on Section 23, northeast quarter?

A. Yes.

Q. And then the balance they dug in 1915?

A. Yes, sir.

Q. And they didn't begin until the 8th of July, did they?

A. Don't ask me, I don't know.
538 Q. Did you see the dredge digging there in 1915?
A. I saw it down there.
Q. Did you see it working?
A. No, sir.
Q. Was it in the river when you saw it?
A. Yes, sir.
Q. The dredge was just as big then?
A. Yes, sir.
Q. They dug in 1915 from the 8th of July to the 4th of November, didn't they?
A. I don't know, they dug only a short distance.
Q. They dug about a mile and a half or two miles.
A. Yes, sir, a very short distance for a dredge. We have dredges that dig 25 miles in a season.
Q. Where have you got dredges?
A. All over the state.
Q. All over the state?
A. All over Minnesota, from one corner to the other.
Q. Then you don't know——
A. I know a mile and a half is a short distance for a dredge to dig in a season.
Q. The last mile and a half was dug after the 1st of July, 1915, so far as you know, Mr. Ralph?
A. Yes, sir.
Q. Why did you state in your direct examination, if you knew that fact, that this ditch was completed in the early spring of 1915?
A. It was probably completed so far as its effect on Lake Traverse.
Q. It was probably completed so far as its effect on Lake Traverse was concerned in 1914, wasn't it?
A. No, sir.
539 Q. They didn't cut through this detaining basin in 1914?
A. No, sir.
Q. They didn't do that at all?
A. They hadn't cut the lower rim of it.
Q. Where is that lower rim?
A. From the railroad track west.
Q. If they got past the railroad track they would cut through the lower rim?
A. No, sir, they would have to get two miles west of the railroad track.
Q. Where is that rim now?
A. The rim is right along from above the railroad track to a point 2 miles to 2½ miles below the railroad track.
Q. How high is that rim?
A. That rim is several feet higher than the lands back east of the railroad track.
Q. How many feet?
A. Two or three.
Q. When did you take those elevations?
A. When I was making surveys for the ditches and other times.
Q. Have you got those figures with you?
A. No, sir.

Q. Did you take them yourself?
A. Yes, sir.
Q. Did you make this map?
A. Made under my direction.
Q. What does that yellow dotted line represent running along through Sections 22 and 14 and 12 and 6 in Township 127, Range 47 and then spreading out to the eastward, what does it represent?
A. Border of the watershed.

Q. And the border of the watershed, as you have got it
540 on this map, runs from that railroad track or a point northerly, nearly a mile north of the railroad track straight southwest?

A. Yes, sir.
Q. About a mile west of the river?
A. Yes, sir.
Q. Why didn't you indicate on this map that rim you are talking about?
A. If you had said that you wanted that I could have put it on for you.
Q. You knew it was there all the time?
A. I knew it was there.
Q. Never occurred to you to put it on this map?
A. No, sir.
Q. And that is about three miles southwest of that railroad track?
A. It extends from the railroad track for a distance of 2½ miles until you get through to where the river has a good flow.
Q. Have you been there this summer?
A. Yes, sir.
Q. Does the water back up in the channel?
A. No, sir.
Q. In the enlarged river?
A. No, sir.
Q. Is there any water up on Section 23 in the river at this time?
A. The water has an elevation in Lake Traverse of 973 and it backs up on the river as far as that elevation will back it. I don't know whether that goes into 23 or not in the channel of the ditch.
Q. Does it back up over this rim?
A. No, sir.

Q. Doesn't it back up to Section 13, opposite Wheaton?
541 A. No, sir.
Q. There is no water in that section?

A. A little water.
Q. Where does it come from?
A. From the upper watershed.
Q. There is no dead water in there at all?
A. It is on the lower end.
Q. Is there on Section 13?
A. No dead water that I——
Q. Below the railroad bridge?
A. No, sir.
Q. How far below the railroad bridge before dead water is backed up there?

A. I observed dead water about 2 miles back from the outlet into Lake Traverse.

Q. How far did you observe the back water from the outlet of the ditch?

A. I couldn't say how far it goes back.

Q. They didn't get through this lower rim of this new retaining basin that you have talked about until after they began work in 1915?

A. 1914, until after they began work in 1914.

Q. Did they cut through the rim of this new retaining basin the year 1914?

A. Yes, sir.

Q. They did?

A. Yes, sir.

Q. And let the water down into Lake Traverse?

A. Yes, sir.

Q. Now, that would naturally have raised Lake Traverse in the spring of 1915?

542 A. Yes, sir, depending on the condition of the river in the fall of 1914, whether it was high water or low water.

Q. There was high water in 1914 and lots of rain, wasn't there?

A. Not that I know of.

Q. Would you say there wasn't?

A. No, sir, not without consulting the records.

Q. What do you remember about it?

A. I don't remember there was high water during the fall of 1914.

Q. Do you remember anything about the rainfall conditions in the fall of 1914?

A. Not that I can give you here.

Q. Do you think it was not a wet fall?

A. I say I don't remember.

Q. If it was a wet fall and having cut through this lower rim of this retaining basin in the fall of 1914, you would expect to find in the early spring of 1915 Lake Traverse very much higher than ordinary?

A. If there was a flood on in 1914 I would expect to find Lake Traverse higher than ordinary, if that flood continued in the spring of 1915.

Q. There is always some flood in the spring?

A. Always some, yes, sir.

Q. Enough so that you say that this cut-off ditch was diverting water from going over into the Rabbit river in the early spring of 1915?

A. The early spring of 1915?

Q. Yes, sir.

A. Yes, sir.

Q. If it did divert water in the spring of 1915 from going

543 over into the Rabbit river and take the water from this delta zone and take it from this new detaining basin, as you call it, down into Lake Traverse, you would naturally expect to find Lake Traverse higher than ordinary in the spring of 1915?

A. Well, that would depend I say on the conditions of the rainfall and floods in 1914.

Q. I want you to assume there was a good deal of rainfall in the fall of 1914, if you please.

A. Well, to say that that would leave a high stage of water in Lake Traverse in the fall of 1914, I wouldn't say it would. It would depend on whether that ditch was cut through early enough to allow the water to run off down the Bois de Sioux. Lake Traverse might be at the ordinary low water stage the 1st of December, 1914, even though there was quite a rain in September and August.

Q. And even though it was cut through, this rim?

A. To cut through the rim would allow the water to move faster.

Q. That wouldn't raise the water any, then?

A. It depended on the amount of water in the Mustinka.

Q. I am asking you to assume there was a sufficient amount of water so that it would have run over into the Rabbit river.

A. If you had a sufficient amount of water in the fall of 1914 so that it would run over, overflow the banks of the Mustinka and into the Rabbit river, it would have a tendency to raise Lake Traverse.

Q. What is the fact, did it raise the level of Lake Traverse in the early spring of 1915?

A. I don't think the lake had a high stage in the early spring of 1916; I can't remember of it having a high stage in the fall of 1914.

544 Q. If your theory is correct that in the fall of 1914 they had cut through this rim of this retaining basin, this new detaining basin and let the accumulated waters down into Lake Traverse, why didn't it raise the water of Lake Traverse in the spring of 1915 the same as it did in 1916?

A. It would depend, I say, on the flood stage in the lake summer and fall of 1914, and I want to state further that the years 1910 and 1911 and 1912 were years of very low rainfall in that locality and that the ground was in a very parched condition, that it absorbed a large amount of the rain waters and the flood waters in 1913 and 1914, that the ground didn't become thoroughly saturated in the same condition it was prior to 1910 until 1915, that it took the years 1911, 1912 and 1913 and 1914 to get the ground back in the same condition it was in 1909. 1910 was the dryest year in the history of the State of Minnesota, 911 was the year of the lowest run-off in the history of the State of Minnesota and those years following 1911 were dry years and Lake Traverse got so low in 1912 and 1913 and 1914 owing to this condition.

Q. Well, the saturated condition of the ground in the fall of 1914, the additional saturation in the spring of 1915, and the excessive rainfall in 1916 altogether caused this excessive state of the water in the spring of 1916?

A. That, taken with the diversion of the waters from the Mustinka river and delta zone caused it.

Q. What part of the excessive amount of water in Lake Traverse, this 3 feet, do you ascribe to the excessive run-off in the spring of 1916 due to the saturated condition of the ground and the excessive rainfall?

A. I say that at least a foot of the stage of Lake Traverse was due to the diversion of the waters from the delta zone from Rabbit river and destroying the value of the delta zone, and that the ground in the fall of 1914 was put in this condition after passing through
545 the dry periods of 1910 and 1911 and 1912.

Q. What about 1915 and 1916?

A. 1915 and 1916 were conditions of ordinary rainfall in that locality, leaving out the years 1910, 1911, and 1912. They were ordinary years and the rainfall in that locality will compare favorably in 1916, that is, in the summer, in the growing season, with many other years, going back as far as 1885.

Q. Then you ascribe the saturated condition of the ground and the great amount of precipitation in 1916, 2 feet of this raise in Lake Traverse and one foot to the Mustinka ditch diversion?

A. No, sir.

Q. You ascribed one foot of that to the Mustinka ditch diversion and the releasing of the water from the delta zone?

A. Yes, sir.

Q. Where did that one foot diversion go in the spring of 1915?

A. The waters were diverted in 1915 just the same as in 1916.

Q. Where did this diversion of a foot go in the early spring of 1915?

A. I don't say it was a foot but the diversion took place in 1915 just the same as in 1916.

Q. Did it take place in 1914?

A. No, sir.

Q. Why?

A. Spring of 1914, not to the same extent because waters were held above the railroad track, to some extent but not as much as in 1915 and 1916.

Q. How do you account for the fact that the water began to rise in Lake Traverse and in this Bois de Sioux river about six weeks before the completion of this Mustinka ditch?

A. The Mustinka ditch, as I stated before, was probably
546 completed, in so far as its effect on Lake Traverse was concerned, in the fall of 1914 and the flood waters that would reach the point to where the ditch had been excavated in 1914 would escape into Lake Traverse almost as readily as they do now.

Q. And yet there was no flooding in the early spring of 1915?

A. Due undoubtedly to the fact that conditions were not favorable to flooding.

Q. In 1916 it is a fact that the flooding was due to the fact that conditions were favorable to flooding?

A. Yes, sir, partly.

Q. In 1917 what is the reason that those flooding conditions did not take place in the Bois de Sioux valley?

A. There was low water states.

Q. The conditions were not favorable to flooding again?

A. No, sir.

Q. And if in the year 1918 the conditions are not favorable to flooding this land will not be flooded?

A. No, sir, if you get dry year like 1910, 1911 and 1912 you wouldn't have flooding on this Mustinka or not much in the Bois de Sioux.

Q. Unless the conditions are favorable there will not be in the future any flooding of this land along the Bois de Sioux valley?

A. Not unless there is sufficient rainfall and sufficient run-off.

Q. What was the average precipitation for this area, Mr. Ralph, from the years that you mentioned, 1885 on?

A. 1885, I think.

Q. What do you get the average annual precipitation?

A. Annual precipitation is not a fair way to estimate floods. You take a rainy period for two or three months and especially in
547 the crop growing seasons, I have got here, starting in with the——

Q. What months are you taking now? Let us take the average annual precipitation to start with; have you got the average annual precipitation of this area from 1885 down to and including 1916?

A. I got from 1896 down to 1916 for the crop growing season.

Q. I thought you said something about 1885 on?

A. I have the crop growing season of June, July and August, I would like to compare the rainfall in those months. It will show that the rainfall at Wheaton and Morris is less than 12 inches for some of the years between 1896 and 1908 that it exceeds what it did in those same months in 1916.

Q. But you are figuring on some 18 or 20 days or something like that for this water to get down to Lake Traverse?

A. I am figuring on three or four months in the crop growing season.

Q. Have you got any statement of the average annual precipitation from the years 1885 to 1916 inclusive?

A. No, sir.

Q. Do you know what the average precipitation was in that area, the area involved here, in 1914?

A. No, I don't know. I know that——

Q. As a matter of fact, Mr. Ralph, it was 29.35 inches, approximately 30 inches for 1914?

A. I don't know.

Q. You won't deny that statement?

A. I won't deny that statement.

Q. In 1915 what was the average annual precipitation of that area?

A. I don't know; I say, I got the summer months.

Q. As a matter of fact, 27.92 inches?

A. It may have been, that wasn't a high precipitation.
548 Q. What was the average precipitation?

A. Average precipitation is about that.

Q. It is about 24, insn't it?

A. I think it is about 25 out there.

Q. And in 1916, do you know what the average annual precipitation was?

A. It was high taking the whole year and it was low——

Q. I didn't ask you about the rest of the year.

A. I would like to answer it——
Q. Don't argue.
A. I say, it was high, taking the whole year but it was low in the months of crop growing season, May, June, July and August.
Q. What was it in May?
A. Take it at Wheaton they had 4.54 inches in May.
Q. How much was it in May at Wheaton?
A. 4.54 inches.
Q. What was it the year before, in 1915?
A. 3.3.
Q. What was it the year before, in 1914?
A. They didn't get it at Wheaton.
Q. Have you got any figures on that?
A. Not at Wheaton.
Q. Taking the area you mentioned?
A. When you haven't got a station how are you going to get it; there was no station at Wheaton.
Q. I haven't asked you about Wheaton; I am asking you about the area that lies in this watershed and runs into Lake Traverse.
A. You must take some station, I can't give you the rainfall for an area unless you give me a station.
Q. Why did you tell me that May, June, July and August in 1916 were very low at Wheaton, if you don't know and had no
549 figures so that you could know anything about previous years?
A. I took the station next to Wheaton.
Q. What did you get?
A. I got a very low precipitation.
Q. Why don't you tell it?
A. At Morris it was 2.79 inches, in April, and in May it was 6.64 inches.
Q. I am not asking you about Morris, I asked you what average you got for the stations around there for 1914.
A. I didn't average the stations.
Q. Why then do you say it was less in 1916?
A. I say it was less in 1916 than it was in 1914 for the months of May——
Q. For the month of May, I am asking.
A. I won't say that but for May, June and July.
Q. It was about half, wasn't it, for the month of May?
A. Go into the month of June and see what you get.
Q. What was it in 1913 in the month of May in the stations around there?
A. It was 4.75 at Morris.
Q. And how much did you say it was in 1916, average?
A. It was 6.94 in 1916 and in the three months of May, June and July it was 12.
Q. I a masking you about the one month.
A. I have stated what it was in one month.
Q. In 1912, can you give it?
A. In 1912 in May at Morris it was 5.52.
Q. How much do you say it was in 1916?

A. It was 6.64.
Q. What was it in June, 1916?
A. In June, 1916, it was 3.70 at Morris.
Q. Have you got it at Wheaton?
A. Yes, sir.
550 Q. What was it?
A. It was 3.95.
Q. Did you average Morris, Campbell, Wheaton and Beardsley?
A. No, sir.
Q. Morris is over in this moraine zone?
A. Yes, sir.
Q. Campbell is also in this area, Wheaton is in this area and Beardsley is in that area; that is, in the area drained by Twelve Mile creek?
A. Yes, sir; Beardsley isn't in this area.
Q. It is very close?
A. Not as close as Morris.
Q. What was it in June, 1915?
A. In June, 1915, it was, at Morris it was 8.78.
Q. That is very, very high?
A. Yes, sir, but not as high as it was in June, 1908.
Q. How much was it in June, 1914, at Morris?
A. It was 12.53.
Q. Now, as I understand you, this flooding of these lands in the Bois de Sioux valley took place in the months of May, June and July, 1915?
A. I said June, July and August.
Q. Well, the rainfall in June, in April, May and June, would probably account for the rise that you found there in the latter part of June and during the month of July, might it not?
A. In the Bois de Sioux?
Q. Yes.
A. That with the diversion of the waters from the detaining basin to the Rabbit river.
Q. Now, in the month of July, 1916, what was it at Morris?
551 A. 2.09.
Q. How was it at the other stations around this area?
A. It was 3.01 at Wheaton and 3.89 at Beardsley and 6.17 at Campbell.
Q. It averaged 4.75?
A. I don't know.
Q. What was it in 1915 for those four stations?
A. In July?
Q. Yes, sir.
A. 4.63 at Morris, 2.84 at Wheaton, 6.68 at Beardsley, 2.21 at Campbell.
Q. Averaged about something over 4.00?
A. Probably; average is not a fair way to get the run-off, I might state.
Q. And in 1914, in July?
A. 1914, in July, Morris 3.10.

Q. The other stations?
A. 2.51 at Wheaton, 3.16 at Beardsley, and 3.50 at Campbell.
Q. Average 3.09, or something over 3.00?
A. Yes, sir.
Q. Now, in August——

Mr. Boutelle: These averages are not testified by the witness but are testified to by Mr. Palmer so we do not want out side bound by the answers.

Mr. Palmer:

Q. What was it at those stations in the month of August?
A. I haven't got that in my note book but I can get them for you.
Q. I have the four stations, Morris, Beardsley, Campbell and Wheaton at 5.12.
A. I presume that is right.
552 Q. 1915, average, is 2.05 and 1914, 1.67, and yet you want to tell me that the average rainfall for June, July and August, 1916, in this area was less than it was in 1915 and 1914?
A. No, sir, I stated that the average rainfall at the station of Morris or at the station of Wheaton—can't get Wheaton in it, don't run far enough back—but that the average rainfall at Morris for the months of May, June and Juiy, 1916, was not excessive and was exceeded by many years form 1896 to 1908.
Q. But as to whether it exceeded 1915 and 1914, you don't know?
A. I would say it did not.

(At 5:00 o'clock P. M. recess is taken until 10 o'clock A. M. September 15, 1917).

553 September 15, 1917, at 10 o'clock a. m.

GEORGE A. RALPH, recalled for further cross-examination, testified as follows:

Examined by Mr. Palmer:

Q. At what flood stage must the water be at and around the confluence of these three parts of the Mustinka river in order to cause flooding of lands in this Bois de Sioux Valley? I mean the upper Mustinka, the Five Mile creek and the Twelve Mile Creek.
A. In its present state, or state of nature.
Q. In its present state.
A. It will flood lands in the Bois de Sioux valley from the time it reaches a stage of 997 and up to its highest stage, that depends on the continuation of the flood to some extent.
Q. And at 997 in the area at and around this confluence of the several parts of the Mustinka, the water would flow over into the Rabbit river?
A. Yes, sir, it would commence to flow over.
Q. In a state of nature do you mean it would commence to flow over or under present conditions?

A. In a state of nature.

Q. Under present conditions the flood would have to be higher than 997 in order to go over?

A. Excepting what would pass through the small culvert that I have spoken of.

Q. What culvert?

A. The culvert in the corner of Sections 1, 6, 7, and 12, Township 128, Ranges 45 and 46.

Q. That is the culvert east of the Tesky house?

A. Yes.

Q. As I understand it then, if the water at and around this confluence was sufficiently high to go over into the Rabbit river, then under present conditions there is bound to be flooding of the lands in the Bois de Sioux valley?

554 A. From that stage up to this high stage, elevation 1,000 feet, the low stage might not flood the land in the Bois de Sioux valley, that would depend on the continuation of the flood, and in a state of nature the low stage would never flood lands in the Bois de Sioux valley.

Q. Well, now, let me speak of high stages of water in the Bois de Sioux valley flooding—and please note the question, Mr. Ralph, and answer it without argument—whenever the waters reach a stage in and around this confluence of the several parts of the Mustinka so that they will go over into the Rabbit river, then there is bound to be flooding of these lands in the Bois de Sioux?

A. No, sir.

Q. Then it is possible that this Mustinka ditch might divert a certain quantity of water and prevent it from going over into the Rabbit river without any flooding of the lands in the Bois de Sioux valley?

A. Yes, sir; that would depend on the flood stage.

Q. Now, how high do you think under present conditions the water would have to rise at and around this confluence of the several parts of the Mustinka in order to cause serious or substantial flooding of the lands in the Bois de Sioux valley?

A. I would say if the water raised to a stage of 998, 999 or 1,000, the stage that it reached in 1916, and remain there for ten days, it would cause quite serious flooding of the land in the Bois de Sioux valley.

Q. But it would have to attain a stage of at least 998 at the confluence?

A. And it would have to remain that way for some time.

Q. Ten days?

A. Yes, sir.

Q. Before any flooding would begin in the Bois de Sioux?

555 A. No, I didn't say so.

Q. Before any serious flooding would take place?

A. Yes, sir.

Q. At what stage at the confluence of the several parts of the Mustinka did the water pass over into the Rabbit river?

A. I have already answered that, at the stage of 997.

Q. Under present conditions at what stage of the water at and around this confluence of the several parts of the Mustinka will it pass over into the Rabbit river?

A. At the same stage but only in a limited extent, just the quantity that can pass through the small culvert.

Q. What is the size of the present culvert in there you speak of?

A. A six foot opening.

Q. Six foot wide, you mean?

A. Yes, sir.

Q. And the depth?

A. About 3 feet.

Q. And it is that dike and this culvert that prevents the water from passing over into the Rabbit river as it naturally would at a stage of 997?

A. The dike, yes, sir.

Q. Now, at 997 under present conditions, would the water pass over into the Rabbit river?

A. A small quantity would flow through the culvert.

Q. It would?

A. Yes, sir.

Q. And it would also pass thorugh in a state of nature?

A. Yes, sir.

Q. So that the water passes over at 997 under present conditions exactly as it did in a state of nature except that not so great a quantity passes over on account of this dike and culvert?

A. That is true.

556 Q. Now, at 998 you say there would be quite serious flooding of the lands in the Bois de Sioux valley?

A. Depending on the duration of the flood.

Q. Well, existing 10 days?

A. If the flood existed in 1918 for 10 days the Bois de Sioux valley would overflow to some extent.

Q. Suppose it existed 5 days?

A. Probably not overflow very much.

Q. To raise the water at and about this confluence to a stage of 998, what would have to be the rainfall conditions, well, I will say, the precipitation conditions, including the winter precipitations?

Mr. Bronson: Now, or when?

Mr. Palmer: Now.

A. It will depend entirely on the condition of the watershed, whether it was saturated, and the condition of the weather for a time prior.

Q. The conditions would have to be favorable to flooding, similar to what they were in the year 1916?

A. Yes, sir.

Q. And during that year extraordinary conditions existed on account of the watershed being saturated by rainfall in the fall of 1914 and 1915?

A. I didn't so state.

Q. Then the conditions, so far as saturation was concerned, of the watershed for the year 1916, were not favorable to flooding?

A. Yes, sir, they were quite favorable but not extraordinary. They were similar to conditions which prevailed many years prior to that time.

Q. At 998, you say at a stage of 998 at and around this confluence of the several parts of the Mustinka under present conditions there would be serious flooding of the lands in the Bois de Sioux.

557 A. I didn't so state, I said that the Bois de Sioux would overflow to some extent.

Q. And when those conditions——

A. Provided the flood remained or continued long enough.

Q. If the waters attain, at and around this confluence, a height of 998, there would be a considerable exodus of the water northward into the Rabbit river, would there not?

A. No, very small percentage.

Q. It would be a very small percentage?

A. Yes, sir.

Q. So that, if we found a considerable quantity of water flowing over into the Rabbit river, say for a period of five days, it would indicate that the waters at and around this confluence were at a higher stage than 998.

A. Yes, sir; it would indicate that the waters were at a higher stage than 998.

Q. How high a stage do you think would be necessary in order to have a considerable quantity of water going over into the Rabbit?

A. Would have to have a stage of 998 to 1,000 the highest.

Q. And in that event, there would be a serious flooding of the lands along the Bois de Sioux under present conditions?

A. Under present conditions, yes, sir, if the flood continued.

Q. Yes, we will say from five to ten days?

A. Yes, sir.

Q. At what stage were those waters at and around this confluence in the spring of 1916 when this flooding occurred in the Bois de Sioux?

A. The crest of the flood was about 1,000 feet.

Q. How long did that continue?

A. Not very long, it subsided. The lands were flooded
558 but not nearly to that depth and I don't know that that flood stayed up that high for more than one day.

Q. Then in the spring of 1916 there was no flooding from the effects of this ditch of the lands in the Bois de Sioux valley?

A. I stated there was.

Q. You say that if the waters attain an elevation of 1,000 feet and it remained at that elevation for several days there would be serious flooding of lands in the Bois de Sioux valley?

A. Yes, sir.

Q. Now, you say it did so in the spring of 1916, it attained a height of 1,000, but that only continued one day?

A. I don't think it continued for more than one day.
Q. Then that didn't cause any flooding in the Boise de Sioux?
A. Yes, sir.
Q. You think one day would do it in 1916?
A. No, it remained at a high stage above 998.
Q. And how many days do you think it remained above 998 in the spring of 1916?
A. I couldn't say, it might have been a month that it remained at 998 or slightly over.
Q. Might have been a week?
A. It was more than a week.
Q. But how long it remained above you couldn't say, you were not there to observe it?
A. I wasn't there to observe it but I was there.
Q. The spring of 1917, this past spring, how high a stage did the waters attain at and around this confluence of the several parts of the Mustinka?
A. I didn't see any high water there this spring at all.
Q. You did not?
A. No sir.
559 Q. Were you there?
A. Not early in the spring.
Q. Were you there in the month of April?
A. I was there in June.
Q. You were not there in the spring?
A. No.
Q. Of 1917?
A. No, sir, not at the confluence.
Q. And whether the waters attained a height of 998 you know not?
A. No.
Q. If under present conditions, which of course prevailed in the spring of 1917, the waters at and around this confluence attained a height of 998 there would be a considerable flooding of the lands in the Bois de Sioux valley, if it remained for a few days?
A. That would depend on the conditions of the watershed and depend on the duration of the flood at that stage as I stated before.
Q. Well, a duration of 5 or 10 days.
A. If it remained at a stage from 998 and above 998 for 10 days and the watershed was saturated as in the usual flood years, ordinary flood years, then there would be some flooding in the Bois de Sioux valley.
Q. The watershed would be saturated after a year like 1916, wouldn't it?
A. Yes, sir.
Q. And in order to pass over in any considerable quantities into the Rabbit river, the waters at and around this confluence in the spring of 1917 must have attained a height of 998 or upward?
A. Yes, sir.
Q. And that being a fact, Mr. Ralph, that a considerable quan-

tity of water did pass over into the Rabbit river in the spring
560 of 1917 and that continued, we will say, from a week to ten days, then there must have been necessarily a considerable flooding of the lands in the Bois de Sioux valley? Now, don't argue that question, answer it.

A. If the water was at a stage high enough to cast a considerable volume down the Rabbit river and if that flooding lasted for at least ten days, then would there be flooding in the Bois de Sioux valley?

Q. Yes, sir.

A. To answer that question intelligently and properly, I would have to know what the stage of Lake Traverse was in the early spring of 1917.

Q. Well, what was it?

A. I don't know.

Q. Why don't you know?

A. Well, there is some things I don't know.

Q. Did you take it?

A. No.

Q. Can you form any opinion or estimate?

A. No.

Q. You don't know anything about the elevation of Lake Traverse in the spring of 1917?

A. Not in the early spring.

Q. You say it raised to a height of 977 in 1916?

A. Yes, sir.

Q. And that that caused this flooding of lands in the Bois de Sioux valley?

A. Yes, sir.

Q. And that this flooding of the lands in the Bois de Sioux valley continued throughout the entire season of 1916, you said?

A. Yes, sir.

561 Q. So you assume that the lake remained at the height of 977 throughout the season of 1916?

A. No, sir.

Q. It didn't make any difference how high Lake Traverse is, those lands are flooded in the Bois de Sioux valley just the same?

A. When the lands are once flooded it takes considerable time for the waters to get off. The water in the Bois de Sioux valley once it has left the channel, when it floods the land for two or three feet, it takes a considerable time for the lands to drain off. Those lands might be saturated to a considerable extent in the fall and the stage of Lake Traverse might have gotten down to quite a low stage.

Q. How long do you think it would take for this water to go out of the Bois de Sioux valley after the lake fell sufficiently so there wasn't any more flow from it?

A. The fall of the lake would be gradual and the draining off of the land would be gradual and it might take all summer depending on the accretion to the ordinary flood, that is, what the rainfall exceeded the normal.

Q. Depending on whatever you happen to think might cause it, Mr. Ralph, at the time?

A. Depends on whatever conditions prevail.

Q. It takes quite a while for the water that comes down from the Mustinka to go out at the northerly outlet of this Bois de Sioux valley, does it?

A. It took about three times as long in a state of nature as it does now. It takes quite a while even now.

Q. That is, it goes off more rapidly now than it did in a state of nature?

A. It goes down the Mustinka more rapidly, yes, sir.

Q. Now, what do you say the discharging capacity is of the Bois de Sioux north of Fairmount at the bridge?

562 A. I stated that I didn't think it ever exceeded 1,500 second feet, and possibly not over 1,400 square feet.

Q. What is the maximum run-off of the Mustinka river watershed in second feet?

A. Per square mile?

Q. Per square mile, yes, sir.

A. I would say——

Q. I say, maximum.

A. Yes; I would say that about 7½ to 8 feet would be the maximum.

Q. The maximum run-off from the Mustinka watershed is 7½ to 8 feet?

A. Yes, sir.

Q. This little map that accompanied the bill of complaint was prepared by you, Mr. Ralph?

A. Yes, sir.

Q. From your own personal knowledge?

A. Yes, sir.

Q. And your own personal investigation?

A. Yes, sir.

Q. And the statements that are made upon that map are correct?

A. Yes, sir.

Q. And if they were not correct you would not have put them there?

A. No, sir; I would like to interpret those statements as to that underneath.

Q. I wish you would look at this map and read what you have put on there as to the maximum run-off of the Mustinka watershed per square mile.

A. It states here that the maximum run-off of the Mustinka watershed per square mile was 2 second feet, that means the probable maximum run-off monthly run-off, in any wet period was 2 second feet but it has a much greater run-off than that for short

563 periods.

Q. It has a greater run-off than that for a short period?

A. Yes, sir, but the average for the month would not exceed 2 second feet.

Q. For how long a period would it be 7 second feet?

A. Might have 7 second feet for 10 days.

Q. And it might have no second feet at all for 10 days?

A. That is true, very true.

Q. And the average monthly run-off per square mile of the Mustinka watershed is 2 second feet?

A. That is what I estimated.

Q. And there are how many square miles in that watershed?

A. 750.

Q. That makes exactly 1,500 second feet, doesn't it, as the maximum run-off from the entire watershed?

A. For the whole month.

Q. And that is exactly the discharging capacity of the Bois de Sioux at the northern end of this affected territory, or substantially the same?

A. Well, it is nearly so, yes, sir.

Q. Now, if it be true that the water in the spring of 1917 at the confluence of the several parts of the Mustinka river went over into the Rabbit river for a period of 10 days in considerable quantity and there was no flooding of lands in the Bois de Sioux valley, at that time then that part of your theory fails, does it not?

A. No, sir.

Q. Explain.

A. I stated before that would depend on the stage of water in Lake Traverse. Lake Traverse might have sufficient storing capacity to take care of considerable flood waters. If Lake Traverse was at a low stage it would have to fill up before there would be
564 much water escaping down the Bois de Sioux river.

Q. At what state did you assume that Lake Traverse was in your answer to the hypothetical question propounded to you on the direct examination?

A. In 1916?

Q. Any time?

A. I knew the stage it was, flood stage was 977.

Q. Let me understand you, in order to have any flooding of the lands in the Bios de Sioux valley you have got to have first a saturated watershed in the Mustinka?

A. You have got to have conditions favorable for flooding.

Q. Well, that means a saturated watershed?

A. Yes, sir, that is one of the conditions.

Q. And you have got to have a stage of the water at least 998 at the confluence of the several parts of the Mustinka?

A. You have to have that before you have any overflowing to the Rabbit and you have to have a flood stage in that before you get a considerable quantity down the Mustinka and, of course, that would depend on the duration of the flood. If you had a continuous flood for two months at a stage of 997½ you might have flooding in the Bois de Sioux valley, it would depend upon the continuity of the flood.

Q. There has got to be water to go over into the Rabbit river by nature before there can be any diverted by this Mustinka ditch?

A. There has got to be water going over by nature?

Q. There has got to be water that would go there by nature before there can be any diverted by this ditch?

A. Yes, sir.

Q. All right; then if I understand your answer to the last question you have got to have a stage of 9[illegible]8 for 10 days, at
565 least, at and around the confluence of the Mustinka and you have got to have a state of water of 997 in Lake Traverse?

A. No, sir.

Q. How much have you got to have in Lake Traverse?

A. My answer would be, if you had a stage of from 974 to 975 and that the conditions in the watershed were favorable to flooding, that is, there was a general precipitation over the watershed, and if a flood remained at 998 and above 998 at the confluence of the Mustinka and Rabbit rivers, that flooding would begin in the Bois de Sioux valley.

Q. Then, how high does Lake Traverse have to be before there is any perceptible rise of the waters in the Bois de Sioux?

A. It would have to be over 974 before there would be any flooding.

Q. Well, 974 is its normal stage?

A. Yes, it would be over 974, from that to 977, it would begin to flood by the time it reached 975 in the low places along the channel and when it reached a stage of 977 it would cover the valley generally.

Q. And as I understand it, the mean average elevation of the water in Lake Traverse is 974?

A. Yes, sir.

Q. If it be true, Mr. Ralph, that the usual amount of water went over into the Rabbit river in the spring of 1917, then your theory that this ditch diverted and prevented it from going there fails, doesn't it?

A. No, sir.

Q. The ditch prevented it from flowing but it went just the same?

A. I never said any ditch did prevent it from flowing.

Q. Well, the ditch diverted it from flowing and it went just the same?

A. If the usual amount—what do you mean by the usual
566 amount, usual for flood years?

Q. Yes.

A. I would say if the usual amount for flood years went down the Rabbit that—and if the flood continued for a long enough period, there would have been a high stage in Lake Traverse and the Bois de Sioux valley would have been flooded under the present conditions.

Q. Then if it wasn't flooded your theory fails if those conditions existed, assuming that they did?

A. If they did exist the statement I made is true as to flooding.

Q. But if there was no flooding and those other conditions existed as you stated, then your theory is wrong; I ask you to assume——

A. Assume something that is impossible?

Q. Yes, assume what I stated here is the fact just the same as you assumed what your counsel stated was the fact.

A. I don't like to assume things that are absolutely impossible.

Q. It is absolutely impossible and could not have happened that any quantity of water went over into the Rabbit river at this confluence in 1917?

A. Yes, sir.

Q. And if anybody saw it going there they saw something that did not exist?

A. Yes, sir, they had a vision.

Q. There wasn't a drop went over there in 1917 and you know it?

A. There may have been some, a very little.

Q. There was no considerable quantity and you know it?

A. Yes, sir.

Q. And you were not there in 1917?

A. Yes, sir, yet I know there was no considerable quan-
567 tity of water flowed over there in 1917.

Q. And you have no actual personal knowledge of it from your being present on the ground?

A. Yes, sir.

Q. You were there?

A. I was there during the summer of 1917 in June.

Q. Were you there in the spring of 1917?

A. No.

Q. Now, your answer to the hypothetical question propounded assumes, you say, there was 70 square miles of inundated lands in this delta zone which you have colored light blue on the map?

A. Inundated or saturated?

Q. Well, to such an extent that there were great quantities of water being accumulated there?

A. Yes, sir.

Q. If it is true that there was no such delta zone there, then that part of your theory fails, doesn't it, Mr. Ralph?

A. That is true but I know it is not true.

Q. You know that there was 70 square miles of inundated and saturated land there at that delta zone?

A. In a state of nature, yes, sir.

Q. When?

A. Prior to the construction of the Mustinka state ditch.

Q. Which year?

A. Prior to 1896.

Q. During what season of the year did this water accumulate upon these 70 square miles?

A. In the spring and summer.

Q. And to what depth did it accumulate upon those lands?

A. To a depth of two or three feet in spots.

Q. How large an area would be covered to a depth of two or three feet?

A. The surface is irregular and it would be hard to deter-
568 mine the area.

Q. What part of the 70 square miles in your best judgment?

A. There was probably at least half of the 70 square miles that had water on the surface and the remaining half was saturated.

Q. Was this to such an extent that the lands were rendered worthless for agricultural purposes?

A. To a very large extent.

Q. They were practically worthless lands, that whole 70 square miles?

A. There was a large area in there that wasn't used for agricultural purposes.

Q. How much of the 70 square miles was not used for agricultural purposes prior to 1896 in your best judgment?

A. I would say that at least 60 per cent was not used in the ordinary wet years for any purpose, any agricultural purpose, the balance may have been used to some extent for hay lands.

Q. There is about 40 square miles that could not be used in orinary wet years for any agricultural purposes whatever?

A. Yes, sir.

Q. Even for hay?

A. Yes, sir.

Q. And I suppose that for cultivation practically all of it could not be used prior to 1896?

A. That is true.

Q. There was none of it in a state of cultivation prior to 1896?

A. Not much of it, no, sir.

Q. No farm buildings there, no settlements?

A. Some around the edges.

Q. Around the edges of this delta zone?

A. Yes, sir.

569 Q. But the inside of the delta zone proper there was no habitations of men there at all, they couldn't live there?

A. Not inside of it, not the wet portion.

Q. Kindly point out to me the wet portion of that, you said a moment ago it was all wet.

A. I mean the overflowed portion.

Q. Well, point out the overflowed portion.

A. The overflowed portion was the portion along the Mustinka state ditch and extending north and south from that ditch, to the south of it for about two or three miles and to the north of it for two or three miles.

Q. You would say an area of three miles on either side, north and south?

A. Yes, sir, extending further south, extending some places south five miles.

Q. What places five miles?

A. Extended south clear down to the road from Herman to Wheaton.

Q. That would be down to the south line of Clifton township, is that it?

A. Down to the center of it.

Q. The south line of Section 18 of that township?

A. Yes.

Q. The overflowed area extended clear down there?
A. Yes, sir.
Q. That was prior to 1896?
A. Yes, sir.
Q. Now, after 1896 were these lands settled up then?
A. They were settled upon gradually as the country was ditched out.
Q. As the country was ditched out they were gradually settled upon and began to be cultivated subsequent to 1896?
570 A. Yes, sir.
Q. Let me understand you, then; upon Sections 17, 16, 15, 14, 13, 8, 9, 10, 11, 12, 5, 4, 3, 2, 1, 32, 33, 34, 35 and 36 of Township 127, Range 45 in Traverse county prior to 1896 there were no settlements?
A. There was some settlement along the river, you have mentioned sections along Twelve Mile creek, there was some settlement along that creek.
Q. That would be on the west side of the sections?
A. Yes, sir, and there was some settlement along the road but the lands were pretty generally overflowed.
Q. Well, people settled right there in the overflow, did they?
A. They settled on the high places, yes, sir.
Q. Just on the tops of the hills?
A. On the knolls.
Q. They perched up on the knolls and the waters spread around them?
A. Yes, sir.
Q. They couldn't cultivate their lands, of course, in that overflowed condition?
A. They cultivated the higher lands and in favorable seasons they cultivated the low lands. There wasn't much cultivation prior to 1896 nor much settlement.
Q. How many settlements, by which I mean farm buildings and people residing in them, were there prior to 1896 upon these sections that I have just described to your best judgment?
A. I couldn't state; possibly ten or twelve in there. Along the river there was settlement and some settlers along the road leading from Herman to Wheaton and again a few on the east side of the flooded area or the delta zone.
Q. In the town of Clifton, in Traverse county?
A. Yes, sir.
571 Q. Now, that portion of the delta zone which you have marked here extending over into Grant county, that would be Township 127, of Range 44, which I believe is the town of Gorton, Sections 18, 7, 6, 31 and 30; were there any settlements on those?
A. I don't recall.
Q. What is your best judgment about that?
A. I don't recall.
Q. Now, Sections 17 and 8 and 5, 32 and 29 in that same township of Gorton, any settlers in that prior to 1896?
A. I don't remember on that, those particular sections.

Q. Do you think that the land was in a condition so that it could have been inhabited?

A. It might in dry years.

Q. What portion of the years, say from 1885 to 1896, could those lands have been inhabited? Well, I will put it this way, could they have been cultivated or used for any agricultural purposes?

A. What portion of the time?

Q. Yes, about the percentage of the time.

A. A large portion of the lands referred to there could not have been cultivated any of the time, some of the lands might have been cultivated most of the time.

Q. Now, subsequent to the construction of this first section of the Mustinka ditch, I understand you to say that those lands were dry, comparatively so?

A. No, sir, it relieved the conditions some, I said, and transferred the floods lower down but they were still wet.

Q. If they transferred the floods further down they were not still on the lands, I apprehend?

A. It relieved the conditions floods were not so deep.

Q. And the land wasn't so saturated as it was before either?

A. No, sir.

572 Q. How far do you think on either side of this first section of the Mustinka ditch it would take off the surface waters and dry out the lands to some extent; how far would it affect the land back from the ditch?

A. In what year?

Q. In any years, generally speaking, as Mr. Bronson says.

A. At the present time the lands are all dried out and drained out.

Q. They were in 1916?

A. They were drained pretty well, there has been some ditches put in in 1916.

Q. I am asking you about the Mustinka state ditch; I understand you to say that that relieved the conditions there.

A. Yes, sir.

Q. And in 1916 I apprehend that these lands were comparatively dry and had good crops there?

A. They were comparatively dry.

Q. Practically no saturation of those lands in 1916?

A. That is, in the early spring they were comparatively dry except ing when there was a general flood on. Those lands are level lands and of course they are flooded in any extended wet period.

Q. Well, but the water would runn off through this ditch and down to the Bois de Sioux?

A. Yes, sir, it runs off in time.

Q. Would it run off any more quickly than it used to?

A. Yes, sir.

Q. Then, of course, the construction of the additional portion of the second portion of the Mustinka ditch, would take the water away so that even those lands would be in much better condition than prior?

A. Yes, sir, it afforded an outlet for the drainage of those lands.

573 Q. I am asking you how far the ditch itself—I am not asking you about the construction of other ditches that have been put in, I am asking you now about the effect of the Mustinka state ditch.

A. It drained off the flood waters but did not entirely drain all the lands and make them all suitable for agricultural purposes because to do that would require other ditches.

Q. Irrespective of other ditches, I ask you how far on either side of this Mustinka ditch did it affect those lands in the delta zone, that is, the section first constructed?

A. It affected them to some extent over the entire delta zone but did not relieve the wet conditions entirely.

Q. How far (we will say) to the south of this first section of the Mustinka ditch here at Section 25, in Township 128, Range 45, how far did that open ditch affect that land?

A. I will say it affected them to some extent over the entire delta zone?

Q. And extending clear to the southern line of the zone you think it affected them?

A. Yes, sir, for the reason that it afforded a better outlet for the waters of Five Mile creek and the Mustinka river.

Q. The floods came from the Five Mile creek and the Twelve Mile creek just the same as from the Mustinka?

A. Not the same from Twelve Mile creek but the same from Five Mile.

Q. They came some?

A. Yes, sir.

Q. Well now, take the whole ditch after it was constructed, how far on either side of it north and south through this delta zone did it affect the lands?

A. It affected the entire watershed.

Q. So that, if your theory is correct, Mr. Ralph, the waters in the year 1916 at the time of the flood were carried off from that so-called delta zone and it was comparatively dry?

574 A. They were carried off from the delta zone and were not allowed to remain there in any detaining basin.

Q. And as a matter of fact, isn't it true that there was a practical failure of crops throughout that area on account of wet conditions in 1916?

A. I wouldn't doubt it.

Q. Take this Section 22, in Township 127, Range 45; that is in the delta zone?

A. Yes, sir.

Q. And did you ever look at the northwest quarter of that section?

A. No, sir, not that I can recall.

Q. Do you know whether or not that land has been occupied and farmed and cultivated for the past 35 years?

A. No, sir.

Q. You say it had been?

A. I don't know.
Q. Your opinion would be that it had not been?

Mr. Pinkney: We object to the question, he has just answered he didn't know.

Mr. Palmer:

Q. What is your opinion about it?
A. I don't know as to whether it was cultivated or not.
Q. Have you an opinion as to whether it could have been cultivated?
A. It might have been.
Q. Take the southwest quarter of Section 15, right north of the tract last mentioned, Township 127, of Range 45; do you know whether or not that has been farmed and cultivated for the past 35 years?
A. I don't know. I know there are some spots in there that are higher than others.
575 Q. In your opinion might it have been cultivated?
A. It might have been.
Q. Now, take section 20, of that same town and range; did you ever examine that to see whether or not it was cultivated farms?
A. That is over near the Twelve Mile creek; I don't remember as to that.
Q. Do you know whether or not that has been cultivated for the past 35 years?
A. I don't know.
Q. Is it your opinion that it could not have been?
A. It may have been.
Q. A fine set of farm buildings on there, isn't there?
A. I don't know.
Q. Now, getting down here in Section 30, Township 127, Range 45, the eastern portion of it appears to be in this delta zone; have you ever examined that to see whether it was cultivated?
A. I don't recall examining that, I don't remember just what condition it was in. I know it was along Twelve Mile creek and there is some fairly high land along Twelve Mile creek.
Q. You think that land may have been settled and cultivated?
A. Yes, sir, might have been.
Q. Now, you take Section 24 of the same town and range; did you ever examine that section?
A. I don't recall the conditions there at this time.
Q. You don't know whether that has been cultivated for the past 35 years or so and has a fine set of farm buildings and is in a high state of improvement and cultivation?
A. No, sir.
Q. You think going north from that road that the conditions would be worse?
A. As it approached the Mustinka state ditch the conditions
576 are worse generally.
Q. Were worse?

A. Yes, sir.

Q. Section 15 then, the north half of Section 15, you would say, would be in pretty bad shape, in Township 127, Range 45?

A. I have no knowledge of specific quarter sections in that locality.

Q. You don't know then whether the north half of that Section 15 has been cultivated in the past 25 or 30 years and is a fine, improved, cultivated farm?

A. I said I have no recollection.

Q. Now, take it in Section 14, the west half of 14, same town and range; have you examined that?

A. No, sir, not specifically.

Q. Take Section 10, did you ever examine that land; same town and range?

A. No, sir.

Q. Section 16, did you ever examine that?

A. Not that I can recall.

Q. Did you ever go over it?

A. I have been over that country, yes, sir.

Q. See any buildings there?

A. I don't recall.

Q. See any cultivated lands there?

A. I can't locate that particular section.

Q. See any water there?

A. I don't remember.

Q. Section 8, ever over that?

A. Yes, sir.

Q. When?

A. Various times since the year 1896.

577 Q. Can you mention any specific time you were ever there?

A. I was along the road there last summer.

Q. What did you see on Section 8?

A. I don't remember.

Q. You were there last summer?

A. Yes, sir.

Q. Well, were you ever there before that?

A. Yes, sir.

Q. What for?

A. Making surveys and making drainage investigations.

Q. For whom?

A. For the State of Minnesota and others.

Q. With a view to putting in ditches?

A. Yes, sir.

Q. When did you do that surveying with a view to putting in ditches there?

A. Various times between the year 1900 and the present time.

Q. Do you mean to say that you went down there and investigated that section with a view to its drainage after the construction of this first section of the Mustinka ditch?

A. Yes, sir.

Q. It still needed drainage then?

A. Yes, sir.

Q. So you can't say anything about Section 8, the improvements on it?

A. No, sir.

Q. When you were there, did you see any water there?

A. I don't remember, I stated.

Q. Well, Section 9, were you ever there?

A. I can't place that.

Q. Same township and range, 127, 45; were you ever there?

A. Yes, sir.

578 Q. When?

A. Various times between the year 1896 and the present time.

Q. See any farm buildings on there?

A. I can't place that quarter section.

Q. See any cultivated land to your recollection?

A. Not that I can recall.

Q. Do you recall you didn't see any?

A. I don't remember.

Mr. Pinkney: For the purposes of the record, do you have any recollection of these specific sections that he is questioning you about?

A. I have no recollections of those specific sections or quarter sections, I can't pick them out and place them in that area.

Mr. Palmer:

Q. You are willing to swear to them, however, and their condition?

A. I am swearing to just what I have stated.

Q. Section 10; do you know anything about that section at all?

A. Just as I have stated with reference to the others.

Q. You don't know whether there has been or is any water on there?

A. I can't remember of that particular section, I know there has been water through that locality.

Q. When did you see water on Section 10?

A. I saw water generally over that delta zone in the year 1896 the first time, and at various times since that time.

Q. But you can't pick out one specific section in that entire delta zone that you ever saw any water on in your life?

A. Yes, sir.

579 Q. Pick one out.

A. I saw water on Sections 7, 8, 9, 10, 11, 14, 15, 16, 17, 20, 21, 22, 23, 24, 25, 26, 27, 28, 33, 34, 35, in Township 128, Range 45, also on Sections 2, 3, 4, 10 and 11, Township 127, Range 45, also on Sections 19, 20, 29, 30, 31 and 32 in Township 129, Range 45, also on Sections 25 and 36, Township 129, Range 45, also on Sections 4, 5 and 6, Township 128, Range 45.

Q. When did you see this water there?

A. In the year 1896 and following years, up to 1900, and from the year 1907 to the present time to a greater or less extent. In the

early years there was more water and later years there was less water owing to the change in the conditions.

Q. Now, were you over those same sections in 1916?

A. Yes, sir.

Q. See any water there?

A. Some of them.

Q. Did you see as much water as you had seen formerly?

A. There was for a short time at flood time nearly as much.

Q. Then the purpose of this ditch, Mr. Ralph, was to drain that water away from that delta zone?

A. Yes, sir.

Q. Was it successful?

A. Yes, sir.

Q. It did it?

A. Yes, sir.

Q. Made it dry?

A. No, sir.

Q. Tillable?

A. No, sir, not completely.

Q. And there was substantially as much water there all of the flood time in 1916 as had ever been there?

580 A. It was for a very short time.

Q. And the ditch was successful?

A. Yes, sir.

Q. When did you see the water on Sections 35 and 36, in Township 127, Range 45?

A. Saw it there every year—in Sections 35 and 36? I won't say as to 36, but 35 and 34 I have seen water there.

Q. Were the lands being cultivated?

A. There was some cultivation in there on the section.

Q. Section 36, you saw water there?

A. No, I won't say as to that.

Q. Did you observe whether it was being cultivated or not?

A. I couldn't say.

Q. Did you see any water on Section 11 in that township?

A. I have at some time since 1896.

Q. You don't know how much or at what seasons?

A. It was generally wet through there and that Five Mile creek was overflowing its banks and spreading out over the adjoining lands.

Q. Section 12 was flooded too?

A. Yes, sir.

Q. Not cultivated, no buildings?

A. I won't say as to that.

Q. There may have been buildings there, there may have been cultivation there despite the flood?

A. Yes, sir.

Q. Now, Mr. Ralph, as a matter of fact, isn't it true that nearly every quarter section in what you have marked here as the delta zone, with the exception of what is called the Redpath sloughs in

Sections 20, 21, 22, 23, 17, 16, 15 and 14 in Township 128, of Range 45, was in cultivated, inhabited farms prior to 1896?

581 A. No, sir.

Q. That is not true?

A. That is not true.

Q. Nor what you have marked in the delta zone over in Grant county prior to 1896 that was not in cultivated, improved farms prior to 1896?

A. In Grant county it may have been cultivated to some extent.

Q. Settled?

A. To some extent.

Q. Buildings?

A. I can't say as to just the number of buildings or the number of occupants.

Q. Why do you call that delta zone?

A. Why, it is described that way in this complaint and I have called it a detaining basin.

Q. You don't call it a delta zone because the soil is of delta formation?

A. I have no particular reason for calling it that other than it was described as the delta zone in this complaint.

Q. You are not a geologist?

A. No, sir.

Q. Did you ever examine the soil there to see what of those lands were delta formation?

A. I have examined the soil, yes, sir.

Q. Which parts of those lands are of delta formation?

A. I have examined them generally and I haven't stated that any of them were of delta formation.

Q. You are unable to give any opinion on that?

A. Yes, sir.

Q. Now, this new detaining or retaining basin that you have described here, where was that?

A. That covered the territory described as the delta zone.

582 Q. This new detaining basin that was created after the construction of the first section of the ditch is all within this delta zone in question here, shown in the light blue?

A. I haven't spoken of any new detaining basin.

Q. Do you know what has been spoken of here as the new detaining basin?

A. I haven't heard any such thing spoken of.

Q. And there never was any such a thing?

Mr. Bronson: That is objected to as argumentative to the witness and not calling for facts.

Mr. Palmer:

Q. Was there ever any such thing as a new detaining basin?

Mr. Bronson: Same objection.

A. There was the same detaining basin there that has always been there and that has been lessened.

Mr. Palmer:

Q. Is it all there now?
A. No, sir.
Q. Where has it gone?
A. It has been drained out.
Q. When was it drained out?
A. From 1896 up to the present time.
Q. How was it drained out?
A. By the construction of ditches.
Q. What ditches?
A. Mustinka state ditch.
Q. What other ditches?
A. County ditches running into the Mustinka state ditch.
Q. When you speak of the water being taken away from this detaining basin and taken down into Traverse Lake and causing this flooding in the Bois de Sioux valley, you included the waters that have been brought in there by these county ditches as well as by the Mustinka state ditch?

A. They are all drained out through the Mustinka state
583 ditch.

Q. Yes, but there wouldn't be the carrying off of these waters of this delta zone, Mr. Ralph, to such an extent as there is without the aid of these county ditches?
A. It wouldn't be so complete, no, sir.
Q. What percentage of this flooding do you ascribe to these county ditches, the flooding of this Bois de Sioux valley?
A. It is hard to separate it; the Mustinka state ditch is the outlet channel that carries the entire flood down there.
Q. You say a considerable percentage is caused by that?

Mr. Bronson: We object to that——

Mr. Palmer:

Q. Answer it the best you can.
A. I couldn't say just what the county ditches contributed.
Q. Would it be a substantial amount?
A. I wouldn't say it would be very much.
Q. It wouldn't be very much.
A. No, sir, the waters would get down through the Mustinka ditch just the same as fast or as rapid as it would with the county ditches.
Q. How would the water from Section 9, Township 127, Range 45, how would the waters get into the Mustinka state ditch without any other ditch?
A. They would flow down in a natural direction through the channel of the Five Mile creek into the Mustinka state ditch.
Q. They are about a mile and a half from Five Mile creek?
A. Yes, sir.

Q. They would flow overland and get into that, I suppose?
A. Yes, sir.
Q. Land there pretty rolling?
A. No, sir.
Q. Pretty level?
A. Level, some higher spots than others, practically level.
584 Q. Practically level, but yet the water would flow off just the same?
A. Yes, sir.
Q. Your contour lines seem to indicate that the direction of the flow would be northwest?
A. Yes, sir.
Q. You think it would be northeast into the Five Mile creek?
A. It would be in the direction of the water-course, all those water-courses.
Q. But the county ditches have helped surely to drain this delta zone?
A. Yes, sir.

Mr. Pinkney: We object to that, he has been all over that.

Mr. Palmer:

Q. And they have been of substantial aid in bringing the water into the Mustinka river?

Mr. Pinkney: Same objection.

A. They have facilitated the flow of water to some extent.

Mr. Palmer:

Q. Were they quite large ditches?
A. No, sir.
Q. Small?
A. Generally small, yes, sir.
Q. Open or tiled?
A. Open.
Q. Were there one of them probably or practically on every section line from the south line of the delta zone clear to the Mustinka ditch?
A. There is a number of county ditches in there at the present time.
Q. Can you make any answer to the question last propounded to you?
A. I have answered it; I couldn't state whether there was one on every section line or not, I don't think there is.
585 Q. With the exception of one section line there is one on every section line, isn't there?
A. I drove through there last fall and examined that pretty carefully and as I recall it now, there was an average of about one on every other section line. I don't know whether they were all county ditches, they were ditches.

Q. So far as your understanding and knowledge goes they are not state ditches?

A. I don't understand that they are.

Q. Let me see your figures where you get the slope of this cut-off, beginning with the—or the part constructed last—at the confluence with the Twelve Mile creek?

A. I took the slope from the surveys, giving the fall per mile, and I found the fall per mile to be 2 feet where I measured it.

Q. I am not asking you about the fall per mile there, I am asking you to let me have the figures where you got the .0004 which you used in computing the carrying capacity of the cut-off from its juncture with Twelve Mile creek.

A. In order to compute with a decimal you must know the fall per mile because that .0004 is the proportion of the fall per mile to the distance.

Q. I want to know what the fall is——

A. 2 feet per mile at the bottom of the ditch.

Q. Now, when did you take those levels?

A. I run levels through there at two different times, once when the ditch was started in 1909, I think, and I——

Q. I was asking you now about the new ditch, the new cut-off part; surely you didn't run levels in the bottom of that in 1909?

A. No, sir.

Q. When did you?

A. I run the levels and drew the original plans in 1912.

Q. Is that what you take your figures from, what the
586 original plans were?

A. Yes, sir.

Q. Then what the slope actually is as it was constructed you don't know?

A. I know very approximately.

Q. You know simply because it was originally planned that it should be done that way?

A. Yes, sir.

Q. I suppose that could be actually ascertained by taking the levels where, in the bottom of the ditch?

A. I have run levels of sufficient extent to know that it was constructed practically according to the original plans.

Q. Yes, but I say it could be actually ascertained by taking the actual levels in the bottom of the ditch?

A. Yes, sir.

Q. And that you didn't do? Did you do that with instruments?

A. I did that with instruments of sufficient extent, run levels in that locality, getting them on top of the ditch and measure the depths at various points and getting the levels at the source and levels at the Mustinka river so that I know what the general fall is.

Q. But did you ever, since that ditch was actually constructed, get down in the bottom of that ditch and take the levels to ascertain the actual slope as it is constructed just now? Can you answer that question yes or no?

A. I have taken them at various points along the bottom of the ditch.

Q. Did you?

A. Yes, sir.

Q. Where?

Mr. Bronson: Counsel objects to the nature of the question as propounded by counsel upon the ground that the witness
587 has a right to answer that question as propounded by counsel in his own way.

Mr. Palmer:

Q. Did you take any measurements at the bottom?

A. Yes, sir, from the top to the bottom.

Q. Did you measure along the line of the ditch itself, east and west, to ascertain the slope of the bottom with instruments?

A. I have measured the line of the ditch, yes, sir.

Q. Have you measured the bottom of the ditch?

A. Along the bottom?

Q. Yes, sir.

A. I assumed the length at the bottom would be the same as a parallel line on the top.

Q. Have you got your figures?

A. To know that two parallel lines——?

Q. Have you got your figures where you measured the slope of the bottom of the ditch?

A. Yes, sir.

Q. Will you let me see them?

A. I haven't got them here, I have them in my note books at the office.

Q. Will you bring them here?

A. Yes, sir.

Q. And show us where you got them?

A. Yes, sir.

Q. You say that from the juncture of this cut-off ditch with the main Mustinka in Section 23, in Township 128, of Range 46, the ditch goes in practically a straight line to the southwest?

A. I didn't so state but it does go in practically a straight line, following the channel of the Mustinka river.

Q. Does it follow the channel of the river itself from this juncture of the cut-off with the main Mustinka in Section 23
588 last described?

A. No, sir, it makes—cut-offs and follows the general course.

Q. Where is the first cut-off, how many miles down from that juncture?

A. There is a cut-off, as I recall it now, right near the upper end; I can't state just where the other cut-offs are down there.

Q. How big a cut-off is that at the upper end?

A. I don't remember.

Q. That would be a short distance below the juncture?

A. As I recall it, yes, sir.
Q. How much does that cut off from the river?

Mr. Bronson: What is a juncture?
Mr. Palmer: A juncture of the cut-off ditch with the main Mustinka.

A. I don't remember.
Q. How do you know there is any there then?
A. I can remember about where the cut-offs are and know there are several cut-offs after you get down to the railroad track.
Q. I haven't asked you about the railroad track, I am asking from the juncture; how many cut-offs for the first six miles?
A. I don't remember.
Q. Are there any?
A. I say I don't remember.
Q. Do you remember that there are not any?
A. I don't remember just what cut-offs there are in that portion.
Q. Didn't you make the plans for this ditch?
A. Yes, sir.
589 *A. Yes, sir.*
Q. Did you have any cut-offs on those plans for the first six miles; where was the first cut-off?
A. I don't remember.
Q. How many miles is it from this junction with the cut-off down the main Mustinka and down to the outlet of the ditch?
A. About 13 miles as I recall it.
Q. That is an air line?
A. Alone the ditch.
Q. Oh, 13 miles along the ditch?
A. Yes, sir.
Q. How many miles do you think the former river was from that distance?
A. I would have to look it up; when I say 13 miles, it may be 13 miles for the whole new ditch.
Q. No, I think that is right, as near as you can possibly figure it is 13 miles.
A. I know that the ditch is pretty straight and follows almost a straight course, I don't think it loses more than, well, over half or three-quarters of a mile in the whole distance.
Q. Well, how many miles do you think it has by the original course of the river from this juncture of the cut-off down to the outlet of the ditch?
A. I think it was about twice as far.
Q. It was 26 miles?
A. Yes, sir, I think so.
Q. That is your best judgment?
A. Yes, sir.

(Defendant's Exhibit 2 is marked.)

590 Q. I show you this Exhibit 2 and I will ask you if that is a blue-print of the original plan that you made for the construction of this ditch, the last portion of it?

A. I think it is.

Q. Here is the juncture of that cut-off?

A. Yes, sir.

Q. In Section 23: I wish you would start at that juncture and run down some six miles or so.

A. Yes, sir.

Q. Do these plans show any cut-offs in the first six or seven miles?

A. These plans appear to show only the channel of the ditch for the first six or seven miles and I am not sure but what there is a channel of the river outside of this channel marked along here, and I don't recall if there is any place in the Mustinka river which was anywhere near as straight as shown in this locality.

Q. Above that juncture and at a distance of between six or seven miles below it the river appears to be shown on that plat?

A. Yes, sir.

Q. In this place, though, what did you do with the river?

A. I don't recall just what the natural conditions were there but it appears to me that the river at various places had banks outside of the channels shown there.

Q. Why didn't you show it on your plans as you did below that?

A. I don't recall, it is a low flat valley in there, the river channel is probably not more than 3 or 4 feet deep in places and some places——

Q. That is exactly why you planned to have it dug out, wasn't it?

A. Yes, sir.

Q. And you did plan to have it dug out, didn't you?

591 A. Yes, sir.

Q. And that ditch was constructed according to this plan?

A. I presume it was.

Q. Now, I ask you again, do you know of any cut-off whatever of any part of the old river from its juncture with this east and west cut-off in Section 23, Township 128, of Range 46, for the first six or seven miles?

A. I say, I don't recall.

Q. Or until you get down to the east line of Section 7, in Township 127, Range 47?

Mr. Bronson: I will ask counsel if he includes in that question the straightening of the channel by the term 'cut-off'?

A. I don't recall just where the cut-offs were along there.

Mr. Palmer:

Q. And you couldn't say there were any for the first six or seven miles?

A. I couldn't say just how it was constructed.

Q. I thought you had examined that since its construction so that you knew it shortened the river?

A. No, I examined it before its construction.

Q. You examined it before it was constructed?

A. Yes, sir.

Q. Now, starting here at the west line of Section 7, which would be the section immediately north of the village of Wheaton, there appears to have been a cut-off of a small bend of the river extending to the northwesterly, you think that is correct?

A. I presume it is.

Q. That is what they call the Hagen cut-off?

A. I don't remember who lives there.

Q. Now, passing on down the ditch, you have it planned here to follow the bed of the old river from this west line of Section 7, last mentioned, clear down to the southeast quarter of 13, which would be immediately west of Wheaton; do you think it was
592 constructed that way?

A. It isn't planned that way.

Q. It isn't planned that way?

A. No, sir.

Q. Where is the cut-off planned?

A. Several cut-offs before you get down to the southwest quarter of 13. One, two, three——

Q. I say, the southeast quarter of 13.

A. There are two cut-offs before you get in the southeast quarter of 13.

Q. From this west line of Section 7 there are none planned until you do get down to the southeast quarter of 13?

A. I don't know that there has been any cut-offs made through there.

Q. There is none planned on your plan?

A. I know that the ditch was changed in places.

Q. Where?

A. Well, there was a change made across the Murphy farm.

Q. Which is the Murphy farm?

A. Murphy is west of Wheaton.

Q. What section?

A. South side of the road.

Q. What section?

A. Section 24.

Q. Well, I was talking about Section 13, southeast quarter.

A. You asked me whether there was any changes made in the cut-offs.

Q. Any changes made or any cut-offs made that you didn't plan on until you got down to the Murphy farm?

A. I don't know.

593 Q. Take below this southeast quarter of 13, take the southwest of quarter 13, there seems to be a cut-off on that, was that made?

A. I don't know.

Q. As a matter of fact, that was the change made; they followed the channel of the old river there instead of cutting off on account of the objection of the owner of that land, don't you remember that, Mr. Ralph?

A. No, sir.

Q. In the northwest quarter of Section 24 there was a cut-off planned that wasn't made; that was the change on the Murphy farm, wasn't it?

A. I know there was a change made on the Murphy farm.

Q. What was the change?

A. I don't remember.

Q. You mean there was no cut-off planned but there was a cut-off made?

A. Something like that.

Q. Below that there are in the northeast quarter of Section 23, there are two small cut-offs?

A. I don't know.

Q. There appears to have been a large cut-off planned in that quarter section and it was not made but they went around the bend of the old river, do you recollect that?

A. No. sir.

Q. Wasn't that on account of the objection of Mr. Anderson, the owner to their making a cut-off there?

A. I didn't have charge of the construction.

Q. Now, Mr. Ralph, if you don't know how that ditch was constructed, if you never were along the line of it after it was constructed, and don't know what cut-offs were made, how do you know that the ditch is only one-half the length of the old river
594 for that distance?

A. I know the general location of the ditch. I know these plans as originally contemplated, I know that the old channel was estimated at that time to be over twice as long as the new proposed channel; but where those cut-offs were put in I can't tell you just now.

Q. As a matter of fact, Mr. Ralph, that new ditch shortened the channel of the river along which it passed, from this juncture of the east and west cut-off in Section 23 here to the northeast down to its outlet exactly three miles, isn't that true?

A. I don't think it is true.

Q. That is false?

A. I think so.

Q. You know it?

A. I believe it to be false.

Q. You never measured it?

A. Yes, sir, I made measurements along the river.

Q. When did you measure this ditch after it was constructed?

A. I didn't measure it after it was through.

Q. When did you measure the old river, the channel of the old river?

A. I measured the channel of the old river in the spring of 1909; that is, I measured along the river and took offsets to the location of the channel and I measured it again in the summer of 1912.

Q. What did you find——

A. I stated before what I found.

Q — the distance of the old river from the juncture with this east and west cut-off ditch down to where the ditch stops now?

A. I haven't separated the parts of the river.

Q. Now, in your answer to the hypothetical question propounded to you, you assumed that this new ditch shortened the chan-
595 nel of the old river at least one-half?

A. Not exactly that. It wasn't based on that alone. I knew that the Mustinka river was carrying twice as much water below the upper end of the new cut-off than it carried in a state of nature, fully twice as much water.

Q. And did you take into consideration, in making that computation, a shortening of about one-half in the old river?

A. That was taken into consideration incidentally as a factor in the computation but I knew of the discharge independent of that.

Q. What is the total drainage area into Lake Traverse as computed by you, that is, ascertained by you?

A. Approximately 1050 quare miles.

Q. Where are the levels that you took in ascertaining the western boundary of the drainage area in North Dakota?

A. I took the western boundary of the drainage area from the United States government plats; it is only an approximate location.

Q. Where are the figures which you took when you ascertained the southern boundary of the drainage area of the Mustinka?

A. It was taken from the government quadrangle.

Q. Where is the quadrangle which fixes the southern boundary around Graceville and Tokah Lake and those places, or I will say, the source of the southwestern branch of the Twelve Mile creek?

A. The quadrangle is on file in Washington, I have a copy in my office.

Q. Which quadrangle is that?

A. I think it is known as the Herman quadrangle.

Q. The Herman quadrangle shows the conditions around
596 Graceville and Tokah Lake and those places?

A. No, sir.

Q. Where are the figures with which you fixed that?

A. There is no quadrangle covering Graceville that location was taken from the United States army engineer's maps and from surveys that we made ourselves extending into that locality and from other authentic data that we have secured.

Q. Where did you get the other authentic data?

A. From railroad surveys and those were, of course, verified and compared with sea level.

Q. Did you go on the land and survey the land yourself?

A. In some instances and to some extent.

Q. Did you entirely?

A. Not all over that area?

Q. Where are the figures with which you fixed the western boundary of the so-called moraine zone?

A. We got that from the government quadrangles.

Q. And that shows the drainage into the Mustinka river just as you have indicated on the map?

A. That is as I have determined it, yes, sir.

Q. And the drainage into Lake Traverse. "Area of Bois de Sioux watershed above outlet of Lake Traverse," what do you mean by that?

A. I mean all of the watershed that is tributary to Lake Traverse lying above the outlet. The Bois de Sioux watershed below that would not flow into Lake Traverse but into the Bois de Sioux river.

Q. And you didn't figure in the area that flows directly into the Bois de Sioux river?

A. I did in some computations.

Q. East or west?

A. Not in the area of the Lake Traverse watershed.

597 Q. Did you figure that?

A. Yes, sir.

Q. How much is it?

A. Area in Minnesota is—I haven't got it separated from Lake Traverse and Bois de Sioux, I have got the area lying west of the Mustinka river watershed and between the Bois de Sioux and Lake Traverse.

Q. That runs into Lake Traverse?

A. Part of it.

Q. All runs into the Boise de Sioux and Lake Traverse?

A. Yes, sir.

Q. I want you to give me that.

A. That area is 74 square miles.

Q. Is that on both the Minnesota and Dakota sides?

A. No, sir.

Q. Which side is that on?

A. Minnesota.

Q. How much is it on the Dakota side that runs into Bois de Sioux?

A. I haven't got that separated.

Q. Have you got the whole of it?

A. Yes, sir.

Q. I wish you would tell me that.

A. The whole watershed down to the mouth of the Rabbit is 1310 square miles.

Q. Does that include the watershed of the Rabbit?

A. No, sir.

Q. Then this Mustinka watershed is how much?

A. 750 square miles.

Q. About 50 per cent of the total watershed into Lake Traverse and the Bois de Sioux?

A. Yes, sir.

598 Q. Exclusive of the Rabbit, is the Mustinka.

A. Little more than 50 per cent.

Q. You know the area of the upper Mustinka watershed, what you have spoken of as the true Mustinka above the confluence?

A. Yes, sir.

Q. What is it?

A. 600 square miles.

Q. I am speaking now of the upper Mustinka that you have indicated in this moraine zone and that runs clear up into Ottertail county, doesn't it?

A. Yes, sir.

Q. And running south to in and around Section 26, Township 127, Range 43, and then turns west and flows down, well, we will say, to the confluence with Twelve Mile creek.

A. Yes, sir.

Q. What is the area in the watershed tributary to that?

A. 600 square miles.

Q. Did you include in that the watershed of the Five Mile creek?

A. Yes, sir.

Q. I wish you would exclude that and tell me what it is in the upper Mustinka alone, if you have the figures.

A. I haven't the figures.

Q. You include in that amount the Twelve Mile creek watershed?

A. I don't recall that I do, no, sir.

Q. Then you have, excluding the Twelve Mile creek watershed, you have 600 square miles?

A. Yes, sir.

Q. So that the Twelve Mile creek watershed is 150 square miles?

A. No, sir.

599 Q. How much is it?

A. I don't know. There are 600 square miles in the watershed down to the junction of the Twelve Mile creek and Mustinka river. I am not sure now that I included Twelve Mile creek in that area; 750 square miles in the area down to the outlet of the Mustinka river and Lake Traverse, 1310 square miles from the watershed of the Mustinka river, Lake Traverse and Bois de Sioux river down as far as the outlet of the Rabbit river.

Q. Have you any figures for the watershed of the Twelve Mile creek?

A. I haven't got them here now.

Q. You have that?

A. I think so, I can get them.

Q. Is the watershed of the Twelve Mile creek larger or smaller than that of the upper Mustinka river?

A. Smaller.

Q. There isn't so much water comes from the Twelve Mile creek then as comes down from the moraine zone in the upper Mustinka river?

A. No, sir.

Q. About how much more do you think comes in the upper Mustinka river from the moraine zone than comes from the Twelve Mile creek?

A. I couldn't state. I only know that in flood times the junction of the Twelve Mile creek and the Mustinka river, that the volume of flood waters is approximately 4,000 second feet, was in 1916.

Q. That is from the—in the upper Mustinka?

A. Yes, sir.

Q. Is it twice as great as from the Twelve Mile creek?

A. No, I didn't say so; I say that the combined waters of Twelve Mile creek and the upper Mustinka——

600 Q. Oh, the combined waters?

A. Yes, sir.

Q. But you can't tell me whether there is more water comes from the Twelve Mile creek than there is from, we will say, the upper Mustinka excluding the Five Mile?

A. I wouldn't say as to that. My opinion is there is more water coming down from the upper Mustinka but when you take out the Twelve Mile and the Five Mile creek, you cut out a considerable part of that drainage area, and I don't know just how to divide the waters without consulting my records.

Q. You haven't looked that up?

A. No, sir.

Q. What do you think about the comparative drainage area of the Twelve Mile and the upper Mustinka, leaving out the Five mile?

A. I couldn't say off-hand.

Q. Would it be your best judgment that it is considerable—that the upper Mustinka drainage area is considerably larger than the Twelve Mile creek?

A. Yes, sir.

Q. That is, excluding the Five Mile?

A. Yes, sir.

Q. At the confluence of the Twelve Mile creek and this cut-off of the upper Mustinka near the northeast corner of Section 19, Township 128, Range 45, which is the dominant stream in flood times?

A. The Mustinka spreads out over a large area before reaching that point and it is difficult to state just from which watershed the most water comes but it is my judgment that the most water comes from the Mustinka.

Q. Which is the dominant stream at that point, the water coming up from the south through Twelve Mile creek or the water coming in from the west through the old ditch?

601 A. The Tweve Mile creek has a well defined channel at that point and the channel of the stream itself carries more water than the channel of the Mustinka, but as I stated before the waters of the Mustinka overflow a wide area.

Q. I am not talking about that now, that is diverted and comes in through the ditch, discharging ditch that runs into the Twelve Mile creek?

A. Yes, sir.

Q. It isn't the channel?

A. No, it is the ditch.

Q. I am talking about the stream that comes in through the old ditch.

A. The Twelve Mile creek is larger than the ditch.

Q. And the flow of the water is very strong to the north in the Twelve Mile creek at that point?

A. No, sir.

Q. Did you observe it in 1916?

A. Yes, sir.

Q. What did it do to the bridge that spans the stream east and west there?

A. I don't know, it is a small bridge there and it probably would wash it out because it is an abrupt bend from the channel of the Twelve Mile creek to the channel of the ditch.

Q. I am asking you about the water as it went on north past the point of the cut-off ditch on around the bend, there was a bridge across that point, wasn't there?

A. Yes, sir.

Q. What did it do to that?

A. I don't know, I think it washed out.

Q. There is an iron and steel bridge?

A. Yes, sir, a small bridge.

Q. What do you mean by a small, what size do you recol-
602 lect it?

A. It is 8 feet from the surface of the water to the bottom of the stringers. As I recall it now, it was about 20 feet, I wouldn't be sure but it was quite a small bridge.

Q. 20 foot span?

A. Yes, sir.

Q. Iron and steel?

A. Yes, sir.

Q. The natural tendency of the waters at that point owing to the fall of the land to the north, as indicated by your contour lines here, northwest, would be to go on to the north around the bend so far as the waters of the Twelve Mile creek were concerned?

A. Independent of the ditch, that is, if the ditch wasn't there, but with the ditch there the tendency would be for the water to go down the Mustinka state ditch because there was a much greater flow.

Q. There is a much greater fall in the bottom of the ditch than there is in the old channel, around the bend?

A. Yes, sir, there is a larger fall in 2 miles of the bend as there was in 7 miles of the old bend.

Q. How about a mile to the west of the juncture of Twelve Mile creek, how much fall is there for 500 feet?

A. If you go only 500 feet you would be out of the bottom of Twelve Mile creek which is low and where there is a pool you might not get any but to take the ditch as a whole there is three time- as much fall or more than in the channel of the Mustinka.

Q Take the first 4,000 feet, just how much fall is there in that first 4,000 feet being westerly from the juncture with Twelve Mile creek?

A. I couldn't state, it is about 2 feet to the mile, I couldn't state exactly.

Q. It can be accurately measured and ascertained?

A. Yes.

Q. After the old river goes around the bend to the north
603 at that point, you say it, in times of high water overflows to the north and you found its channel. Now, I will ask you, does it overflow any to the south and southwesterly so as to run across that sort of a peninsula and again reaches the Mustinka?

A. I would say that in extreme high water it would.

Q. Did you observe the ground in that peninsula from the south bend of the ditch to see whether there were flood channels extending across southwesterly to the river again?

A. I didn't observe any flood channels but I observed low points

that would be low enough to allow the water to escape during periods of high flood stage.

Q. In fact the banks are about the same on the north side and the south side as you go around the bend?

A. They are practically the same after you get a mile north of Twelve Mile creek, of the juncture of the Mustinka ditch with Twelve Mile creek.

Q. So the waters are just as likely to go south as to go north?

A. At extreme high stage. I think the lowest place I found on the south bank is up on the upper reaches of the Mustinka and below the point where the Mustinka ditch crosses Twelve Mile creek was 999, so that when the flood is at a stage of 1,000 feet the water passes over.

Q. And, of course, that would obtain in a state of nature same as it does under present conditions?

A. Yes, sir.

Q. Where is your place of residence?

A. In the City of St. Paul.

Q. How far from this area affected in this suit?

A. About 200 miles.

Q. How long have you lived in St. Paul?

A. 8 or 9 years. 9 years I lived here as my permanent
604 residence or where I resided continually, before that time I resided in Crookston and had an office in St. Paul.

Q. You mean the past 9 years continuously?

A. Yes, sir.

Q. You have resided in St. Paul. Now, when did you get into the employ of the State of North Dakota in collecting evidence and data for the purpose of this action?

A. I was engaged by the attorneys representing the State of North Dakota in the spring of 1916.

Q. And you at once went upon the ground and ascertained these conditions that you have described?

A. Yes, sir.

Q. And made these surveys?

A. Yes, sir.

Q. And prepared this map?

A. Yes, sir.

Q. And assisted in the preparation of the bill of complaint?

A. No, sir, I won't say that.

Q. You gave the data that is used in there?

A. I prepared the map and gave the attorneys the data that they asked me for.

Q. Were you employed by the attorney general of the State of North Dakota?

Mr. Boutelle: You needn't answer that question because you don't know. Witness is instructed by his counsel that he need not answer that question.

The Commissioner: The witness is instructed to answer.

A. I decline to answer on advice of counsel.

Mr. Palmer:

Q. Who is your counsel?

Mr. Boutelle: You need not answer that question.
The Commissioner: Same ruling, he may answer.
Mr. Boutelle: You may decline to answer on advice of
605 counsel.

A. I decline to answer under advice of counsel.

Mr. Palmer:

Q. How much have you been paid by the State of North Dakota under your employment in collecting data, making maps and surveys and other work for the preparation of this case?

Mr. Boutelle: You may decline to answer under the advice of counsel.

A. I will decline to answer under advice of counsel.

Mr. Palmer:

Q. Have you ever been paid by the State of North Dakota one dollar for your services in connection with this case?

Mr. Boutelle: You may decline to answer under advice of counsel.

A. I decline to answer.

Mr. Palmer:

Q. Why do you decline to answer those questions?
A. I have stated.
Q. Have you any reason to conceal the facts called for by these questions?

Mr. Boutelle: You need not answer that question, you may decline to answer on advice of counsel.

A. I decline to answer on advice of counsel.

Mr. Palmer:

Q. That is, your counsel has to tell you whether you have any reason to conceal the facts called for by those questions?

Mr. Boutelle: You may decline to answer this question as absolutely incompetent, immaterial and irrelevant and something that counsel himself should know is both unprofessional and immaterial.

A. I decline to answer on advice of counsel.

Mr. Palmer:

Q. Have you any interest in the result of this suit?
A. None whatever.

606 Mr. Boutelle: I would like to note upon the record here a request by the complainant of the defendant state and its counsel to produce at the next session before the Commissioner following this adjournment the findings and report of the legislative committee which was referred to in the Act of the Legislature of 1911 which has already been offered in evidence.

Mr. Palmer: I will say to counsel that we have a copy of that report, I am not sure that it is the original, and I have inquired in the secretary of state's office for the original report but they do not seem to be able to find it. But I have what I am reliably informed by the party who drew the report and who really made it, an accurate copy of it and we should be very glad to produce it and have it introduced in evidence.

(At this time adjournment is taken until Thursday morning, September 20, 1917, at 10 o'clock.)

607 September 20, 1917, 10 a. m.

Hearing resumed, pursuant to recess taken, with all parties present.

Cross-examination of George A. Ralph continued.

By Mr. Palmer:

Mr. Palmer: I offer in evidence as part of the cross-examination of this witness Defendant's Exhibit No. 2, being the plan of the second section of the ditch, prepared by the witness as State Drainage Engineer.

Q. I think I was asking you, Mr. Ralph, in regard to the comparative areas of the different parts of the Mustinka watershed. Did you make an estimate of the size of the area tributary to the upper Mustinka, by which I mean excluding Five Mile and Twelve Mile Creeks?

A. I didn't. I intended to but I haven't done so yet. It slipped my mind.

Q. Are you able to form an opinion as to the size of that part of the watershed?

A. No sir.

Q. What area tributary to the upper Mustinka did you assume in your answer to the hypothetical question propounded?

A. The area of the watershed above the junction of twelve mile creek, Five Mile Creek and the Mustinka river.

Q. What are did you assume for the upper Mustinka?

A. Well, I call that the Upper Mustinka.

Q. You didn't then assume any distinct area for the part tributary to the Mustinka exclusive of the Five Mile and Twelve Mile creeks?

A. No sir.

Q. Now I observe that as tributary to the upper Mustinka, that is the part which runs south and before it is turned to the west down in Section 26, Township 128, Range 43, you have a consid-

608 erable area appearing here in a sort of ear-shaped form on the west side of that portion of the watershed in the Moraine zone. What bodies of water are included in that ear-shaped portion of the watershed?

A. I can't recall. The boundary line of the watershed was fixed as closely as I could determine from the government quadrangles in that locality.

Q. You didn't then fix the limits by any survey of the watershed upon the ground at the time?

A. I have been over the ground and made a personal examination and that assisted me somewhat, but the principal source of my information was the government quadrangle.

Q. I asked you if, prior to your preparation of this map and the limits of this watershed, you went again over the ground and fixed the limits of the watershed?

A. Not immediately prior to the preparation of the map.

Q. Did you at all subsequent to your knowledge gained during the preparation of the government quadrangles?

A. Yes, sir, I was over the watershed.

Q. When?

A. Between the time I had charge of the preparation of the government quadrangles and the time I prepared this map—in the early summer of 1916 and in the summer of 1915.

Q. Did you find conditions different as far as the limits of the water were concerned than you found them at the time you prepared the quadrangle or assisted in preparing the quadrangle?

A. Not materially.

Q. Will you look at this map please and tell what natural bodies of water you find in this—well, I will speak of it as the ear-shaped portion of this upper Mustinka watershed in the northern part of the Moraine zone?

A. There are lakes there. I don't recall the names of the lakes.

609 Q. Can you, by reference to the quadrangle, give me the name of the lake?

A. Yes, sir, Lightning Lake.

Q. Upper Lightning Lake—is that correct?

A. Yes sir.

Q. And that is a large body of water, Mr. Ralph?

A. Yes sir.

Q. Approximating six or eight hundred acres at least?

A. Yes, sir, probably six or eight hundred acres.

Q. The overflow from that Lake would be substantial in wet seasons?

A. Yes sir.
Q. The area around it appears also to be very swampy and very low?
A. Yes sir.
Q. Now all of that area as I understand you is tributary to the upper Mustinka?
A. I believe so.
Q. Well, that is the way you have indicated it on this map?
A. Yes sir.
Q. Now this Upper Lightning Lake appears to be in Sections 36, 25, 24 and 13 of Township 131, Range 44. Am I correct?
A. Yes sir.
Q. And this government quadrangle, Defendant's Exhibit 3, is one of the quadrangles bearing your name, George A. Ralph as Chief Engineer?
A. Yes sir.
Q. And was made by you from surveys upon the ground?
A. Yes sir, the map was made in Washington.
Q. Who did the surveying?
A. I had supervision of the surveying.
610 *A. I had supervision of the surveying.*
Q. Well, it is correct?
A. Yes, sir, I believe it to be.

Mr. Palmer: We offer Defendant's Exhibit 3 in evidence, being the Wendell Quadrangle.

Q. What are these brown lines, Mr. Ralph, on this quadrangle, Exhibit No. 3?
A. Contour lines.
Q. Those show the elevation of the ground?
A. Yes sir.
Q. At the points where it is equal—it runs through all points where the elevation of the ground is the same?
A. Yes sir.
Q. That is if a person were walking along one of those contour lines they would neither travel up hill nor down dale, but on a level?
A. Yes sir.
Q. Now what is the elevation of upper Lightning Lake as indicated on this quadrangle?
A. 1,082 feet above the sea level.
Q. Now let me call your attention to this contour line in Section 4, Township 130, Range 43, which is marked 1,150. What does that mean?
A. That means 1,150 feet above the sea.
Q. I call your attention to the contour line to the westward of this point marked 1,150. What would that be?
A. 1,140.
Q. How many feet would that be above the sea level?
A. Fifty-eight feet.
Q. Now I show you the map and I wish you would take that 1,140 contour line and follow it from this point in Section 4 last referred

to to the southward. I don't know as it would hurt that quadrangle any to follow it with this red pencil.

611 Witness traces line with red pencil.

A. It loses itself on the north shore of the lake.
Q. Of lower Lightning Lake?
A. Yes sir.
Q. Well, it loses itself to the southward in lower Lightning Lake?
A. No, not in the lake.
Q. Well, at the shore?
A. The lake is forty feet below that.
Q. And lower Lightning Lake is in Section 16, Township 130, Range 43?
A. Yes, sir.
Q. Now I wish you would follow this 1,140 line to the northward with this pencil.

(Witness does so.)

Q. Is that far enough to the northward, you think, up into Section 4, Township 131, Range 43, or would you care to follow it any farther?
A. I don't care to follow it any farther.
Q. Now you have indicated on this quadrangle, Defendant's Exhibit 3 the course of the 1,140 contour line both north and south of the boundary of upper Lightning Lake. Are you of the opinion that the waters of this lake raise to a height of 58 feet so as to flow over into the Mustinka?
A. I haven't examined it sufficiently.
Q. It would be some raise?
A. I would have to make a more critical examination of the ground to tell where the waters of Lightning Lake discharge at this time. They don't appear to overflow to the west or to the north. There is an area in there that appears to be a basin.
Q. Well, what would be your best judgment at this time as to whether that area in there around upper Lightning Lake is tributary to the upper Mustinka?
A. I think possibly that it might not be tributary to the upper Mustinka.

612 Q. That leaves room for a possibility that it might?
A. Yes.

Q. Now will you explain the possibility by which those waters could get over this 58 foot raise of land and into the Mustinka?
A. The contour lines are drawn very close in places and there is a large swamp area around Upper Lightning Lake from the east and ditches marked that run between the contours where the contours run almost parallel and close together, and I am not sure but what the overflow from the lake would pass off through some of those low places, and I would have to make a very careful examination for the reason that I do not observe where it could overflow and pass off in any other direction, and I have always understood that Upper Lightning Lake drained into Mustinka.

Q. But in order to verify that proposition you would have to make a very careful examination of the ground?

A. Yes, sir.

Q. It never occurred to you to make that careful examination before you prepared this map and swore to it?

A. I felt quite sure that it overflowed into the Mustinka.

Q. And you feel that way now?

A. No, I am not so sure about it now.

Q. Well, what part of your opinion in answer to the hypothetical question did you base upon the overflow of this large swampy area around upper Lightning Lake into the Mustinka?

A. That area wouldn't probably cover more than twelve or fifteen square miles out of 600, and it is entirely probable that the same number of square miles might be added in another place so that would not affect my calculations.

Q. Do you know that the same number of square miles of an equally saturated water area is added at any other place?

A. I don't know, but it is possible that it may be.

Q. Tell me where that possibility exists?

613. A. Well, that was south in the vicinity of Moose Island, the village of Moose Island. The division of the watershed there is uncertain and an equal amount might be added in that locality.

Q. And where would that water find its outlet?

A. Into the Mustinka.

Q. How?

A. Through Five and Twelve Mile creeks.

Q. Then you think there is a possibility that you ought to cut off this ear-shaped portion you have put on this upper watershed and transfer it down to the southeastern corner?

A. I think by cutting off ten or twelve square miles in that locality it would not probably affect the total area of the water shed very much because it is probable that an additional amount would be added if a careful contour or watershed line was drawn around the whole area.

Q. I take it from your testimony that you had made a careful examination and had carefully and accurately established the limits of this watershed?

A. I stated that I established that watershed boundary in the usual way of establishing watershed boundaries and that it was difficult to determine the division between water sheds in some areas.

Q. Well, you had before you this Geological Survey quadrangle. Isn't that supposed to be correct?

A. Yes, sir.

Q. Well, then, why didn't you follow it?

A. I tried to follow it, yes sir.

Q. Did you succeed?

A. As I stated before there is a possibility that there is an error there in that particular locality.

Q. Now, Mr. Ralph, in your best judgment from an examination

of this quadrangle where do the waters of the Upper Light-
614 ning Lake and that swamp area surrounding it find there outlet?

A. Upper Lightning Lake doesn't appear to have any outlet. It appears to be a basin.

Q. Lake the Dead Sea?

A. Yes sir.

Q. Then your statement in your direct examination that the waters of this Moraine Zone run off rapidly into the Mustinka would not apply to this portion of the Moraine Zone at all?

A. No, sir, not to any place where the waters were collected in a basin and didn't flow off.

Q. Well, how many sections are there in that basin according to your best judgment from that quadrangle?

A. Ten or eleven square miles.

Q. What is the lowest point as shown by that quadrangle through which the waters might escape from upper Lightning Lake and the swamp area surrounding it?

A. It seems to be a point to the south, but I am not sure but that the waters if they overflowed there would run on south into the Mustinka basin; that the waters would raise to the elevation of something over 1,080 feet.

Q. They would run into Ash Lake there?

A. Yes sir.

Q. That would raise to 1,080 feet?

A. 1,080, between 1,080 and 1,090.

Q. Well, the elevation of the lake is 1,082?

A. Yes sir.

Q. Then if they got between 1,080 and 1,090 they would run into Ash Lake?

A. 1,090 I think they would have to raise to.

Q. Well, how much lower is Ash Lake than upper Lightning Lake?

A. Ten feet.

Q. Don't you think the waters might go that way and into
615 that lake?

A. They might in high water.

Q. What are the intervening elevations?

A. Well, 1090 seems to be an intervening elevation.

Q. Now after the waters get down to the southward there from Upper Lightning Lake have you any opinion whatever as to where they go? You seem to have put Ash Lake out of this Mustinka area?

A. They seem to flow, or appear to flow southward into the Mustinka.

Q. On the contrary do they not flow westward and form the main branch of the Rabbit river, being that part of the Rabbit river which flows westward through Sections 13, 14 and 15, Township 130, Range 45?

A. I wouldn't say that they did.

Q. Hasn't that been ditched by state ditches so that they flow in that direction and into that outlet?

A. There is a state ditch in there known as Rabbit River state ditch. It is a shallow overgrown ditch that carries but very little water.

Q. Under whose supervision was that ditch put in there?

A. It was put in there by the Red River Valley drainage commission before the year 1900.

Q. Before you became State Drainage Engineer?

A. Yes sir.

Q. You observed that the Rabbit River appears to have three branches, that is, one at the south near the Tintah slough, this one in the center at the point I described in my last question, and one to the north easterly above the Village of Campbell. Which of those is the main branch or main part of the Rabbit?

A. I would say that the greater portion of the waters that make up the Rabbit come from the south and the southeast branch, in the Tintah slough direction.

616 Q. By far the greater?

A. I didn't say that. I said in my judgment, a greater portion of them.

Q. Come from the Tintah slough area?

A. Yes sir.

Q. How do they get there?

A. Flowing north. There is a good fall to the north.

Q. They flow northward from the Mustinka basin?

A. Yes sir.

Q. And to facilitate that flow from the Mustinka basin there is a large open ditch put down through the Tintah slough and running down to the north line of Section 36 in Township 129, range 46, is there not?

A. There it a ditch there, yes.

Q. Well, isn't that a pretty good sized ditch?

A. No, not a very large ditch, not where it starts.

Q. Do you know when it was built?

A. I couldn't state just the year—some few years ago.

Q. That ditch was built some time in 1895 or 1896, Mr. Ralph, I believe?

A. I don't know just when.

Q. Well, it was before your term as State Engineer?

A. I don't remember of seeing it there. I remember the old Rabbit River ditch, but I don't remember that branch to the south.

Q. Now you say that is not much of a ditch where it starts?

A. No sir.

Q. Isn't it just as big where it starts as it is anywhere else?

A. No sir.

Q. What is the size where it starts, according to your best recollection?

617 A. About four feet wide at the bottom and probably ten feet wide on top.

Q. On the contrary, isn't it eight feet wide at the bottom?

A. No, sir, I don't think so.

Q. When did you see it last?

A. About ten days ago.

Q. Was it working?

A. No.
Q. What was the matter with it?
A. Nothing to work with.
Q. No water there?
A. No sir.
Q. Do you think that that ditch would have any effect on the flow of the waters to the north into the Rabbit River from the Mustinka basin?
A. It would have the same effect as other ditches. It would accelerate the flow, collect the waters and accelerate the flow.
Q. Did you take that into consideration in your answer to the hypothetical question?
A. Yes sir.
Q. Now you observe that you have the source of the Rabbit river in this Delta zone at a point about two miles east of this Tintah slough ditch and about one mile and a half to the east of the limits of the slough itself. What is that—what have you got in there?
A. That is a branch of the Rabbit river.
Q. That is not the source of the Rabbit river then?
A. Well, it is the source of the Rabbit River for the reason that it takes the overflow water from the Mustinka at that point.
Q. It does?
618 A. It did.
Q. When did it.
A. In a state of nature.
Q. But not now.
A. No sir.
Q. No water flows there now?
A. Only what falls on the surface and collects in that immediate locality.
Q. What is the difference in the elevation at the north line of Section 1, which you have described as the point of egress of the overflow from the Mustinka river and this channel in Section 32, Township 129, Range 45?
A. I would have to consult the map that I think is Exhibit 4 or 5 to get the elevation at this point.
Q. Will you let me see your figures by which you measured and mapped this channel which you say extended from the Southeast corner of Section 1, northwesterly from there over into the Tintah slough?
A. From the southeast corner of 1?
Q. Yes.
A. I will let you see the elevations I took. I can recall that quite well, however. That showed an elevation of 996 at the southeast corner of 1, and the fall was about three feet following the course of the river from that point to where the channel crossed the north line of Section 1 a mile northward.
Q. Now calling your attention to Complainant's Exhibit 5, you indicate an elevation you say of 996 at the southeast corner of Section 1 at the point marked E last referred to?
A. Yes sir.
Q. And 995.1 at the point marked F?
A. Yes sir.

Q. What are the intervening elevations between those points?

A. In that new channel there is a downward slope along
619 the channel, and to the east or west you would get an elevation of about 998.

Q. Did you take an elevation at a point on the east and west quarter line of Section 6 about 150 feet easterly of where it is crossed by the west line of Section 6?

A. No, I didn't.

Q. Now I call your attention to Defendant's Exhibit 4 and particularly to the contour line beginning at the point last mentioned and extending, I will say first, following it to the south and southeasterly, then northeasterly and easterly, and then, as indicated on this map down into the southeast quarter of Section 6, and on around to the northwest and southwest and west back to a point about 160 rods south of the northeast corner of Section 12, which contour line is marked 999?

A. Yes sir.

Q. Do you think that contour line is approximately correct?

A. No, I do not.

Q. Have you got your elevations that you took at the point crossed by this contour line?

A. I have the elevations along that water course of the Rabbit river, and I have followed it out and examined it and I notice that this map also doesn't show a contour of 999 on the banks of the Mustinka river in Section 1 and Section 12, and there is a contour of 999 there. That is not shown.

Q. Have you got your figures showing that contour line?

A. Yes sir.

Q. Will you get them please?

A. Yes sir.

Q. When did you take those levels and make those contours?

A. At various times during the last six weeks.

Q. Then, as I understand you, Mr. Ralph, on this map,
620 Defendant's Exhibit 4, this 999 contour commencing at the point just easterly of where the east and west quarter line of Section 6 crossed the west line of that section is mythical; there is no such contour line of 999 there?

A. There may be a contour of 999, but it doesn't run in the shape shown on that map in my best recollection.

Q. Where does it run according to your best information the 999 contour?

A. It doesn't run west as far as shown on this map. There may be a contour of 999 near the section line, the west line of Section 6, but there is a low place about sixty rods east of the section line where the waters from the southwest corner of Section 6 pass northward and crosses northward and eastward, turning westward on the north half of Section 6 and crosses the west line of Section 6 at a point about eighty rods south of the northwest corner there.

Q. The black dots on that map are supposed to represent buildings, and this one about sixty rods east of the point on the section line appears to be some buildings marked—those stand right in this channel that you have spoken of?

A. No sir.

Q. Where are they with reference to the channel?

A. They stand to the west of the channel—one of them, and the other one to the north.

Q. About how far westerly of the channel?

A. Not far. The channel passes just immediately east of the building farthe*r*est to the south and immediately south and west of the building to the north.

Q. How wide is the channel at that point?

A. It is about fifty feet wide and about two feet deep.

Q. Where it crosses this contour line?

621 A. Yes sir.

Q. This 999 contour line?

A. Where it crosses the point where that contour line is shown.

Q. There should be an abandonment of that contour line or at least the elevation should come down to 997 for 50 feet then, the south line of it?

A. Yes sir.

Q. After dinner you will produce your figures, Mr. Ralph, showing the erroneous location of this 999 contour line in these various parts of Section 6?

A. Yes sir.

Q. Now Mr. Ralph, isn't it true that what you have indicated here as a channel extending from that point marked E to the point F on Complainant's Exhibit 5 in reality is only a flood channel leaving the Mustinka basin, down in the northwest quarter of Section 8, and extending northwesterly, westerly and southerly back into the Mustinka?

A. No sir. I don't think so. I think it is just as represented on this map.

Q. Did you observe that the water went north from the point marked E on Complainant's Exhibit 5 along the road or Section line, the west line of Section 6?

A. No sir, I did not. I observed that it flowed northwest in times of high water into a small lake in Section 1, and thence northward.

Q. On the contrary, didn't it flow directly north along the road for about 100 rods and then turn to the northwest?

A. It might have flowed north for thirty or forty rods and then turned northwest.

Q. Now you say you didn't see in what direction it washed this twenty-four foot galvanized culvert in the spring

622 of 1916?

A. No sir.

Q. The stream which you saw running there in the spring of 1916 flowed in what direction?

A. North and northeast. It spread out.

Q. Well, according to the location of your channel on Complainant's Exhibit 5 it would be almost due north from the point where it crossed the road?

A. It spread out after it crossed the road.

Q. How wide an area did it spread over?

A. Thirty or forty rods, at the widest.

Q. That would be how many feet?
A. Sixteen and a half feet in a rod.
Q. About five or six hundred feet?
A. Yes sir.
Q. Then you were in error in your testimony in saying it was sixty or seventy feet in the spring of 1916?
A. No sir, I wasn't. I stated it was sixty or seventy feet where it crossed the road, but after it crossed the road it spread out.
Q. How deep was it after it spread out this five or six hundred feet?
A. It was very shallow. Three inches, probably, to a foot and a half or two feet.
Q. It spread in what direction principally east or west?
A. It spread to the east for fifteen rods or more and the same distance to the west over Mr. Teskey's pasture.
Q. And all of that volume of water you think came from how large an opening in the road grade there?
A. An opening sixty to seventy feet at the top, but it was
623 narrower at the bottom and it only flowed through there in high stages, as I stated before, and probably wasn't sixty or seventy feet wide for more than a day.
Q. I understand your testimony to be that you observed it for only a day?
A. I observed it at the high stage only a day and when I was there again it was very little of it flowing through there.
Q. How much later was that?
A. A week later—or two weeks later.
Q. I have forgotten whether I asked you whether you observed it coming over there in the summer flood of 1916—was there a summer flood in 1916?
A. Yes sir.
Q. Were you at this point at that time?
A. I wasn't at that point at the high flood, but the indications were that it went through there.
Q. I forget whether I asked you whether you were there in the summer flood of 1915—did they have a summer flood in 1915?
A. Yes sir.
Q. Were you at that point then?
A. I was in the country—not at that particular point.
Q. Whether the water went over there in the spring flood or summer flood of 1915 you wouldn't know?
A. No.
Q. As bearing upon that fact you would say that the construction of this first section of the Mustinka ditch having materially reduced the area of the Delta zone there would be greater quantities coming over than in a state of nature?
A. No, not necessarily.
Q. The reduction of the size of the Delta zone would not materially then increase the quantity of water coming over into the Rabbit?

624 A. It had the tendency to discharge the waters lower down on the Mustinka—part of the waters.

Q. I didn't ask you that. I asked if it would have the effect of materially increasing the quantity which would go over into the Rabbit river?

A. I don't think it would.

Q. And you wouldn't say that a reduction in the size of the Delta zone would materially increase the quantity that would naturally go into the Rabbit river?

A. No, sir.

Q. The time that you saw the greatest quantity going over there was in 1896 prior to the construction of the first section of the ditch?

A. Well, not prior to the construction but before it was completed. There was some little work to do on it, but I don't know just how much.

Q. It was sufficient so that it brought down larger quantities to that particular point?

A. Carried larger quantities down the Mustinka and beyond that point.

Q. Well, if it brought larger quantities down to Twelve Mile creek confluence it would necessarily increase the quantity of water in the Twelve Mile creek, would it not?

A. Yes sir, in Twelve Mile creek and the Mustinka.

Q. That being true, you would look for larger quantities to go over into the Rabbit at this point of overflow?

A. The Rabbit was simply an overflow channel and took waters only in high stages, as I stated before.

Q. I am asking you about the overflow times—the amount of overflow?

A. That would depend on the stage.

625 Q. Would or would not the construction of the first section of the Mustinka ditch bring greater quantities of water from the Delta zone and particularly the eastern portion of it down to this point of overflow?

A. I don't think it would materially increase the amount of water that was discharged through the Rabbit river. It may have some.

Q. So that you would naturally look for a greater overflow into the Rabbit from the time of the completion of the first section until the construction of the new section?

A. No sir. I didn't look for a greater overflow into the Rabbit after the completion of the first section and prior to the completion of the second section.

Q. Where did that volume of water go?

A. Down the Mustinka.

Q. Prior to the construction of the new section of the ditch?

A. Yes sir, that is the larger portion of it did.

Q. Well, then, as I understand it, after the construction of this first section of the Mustinka ditch, the water did not continue to overflow into the Rabbit the same as it had before in a state of nature?

A. Practically the same.

Q. Wouldn't the raising of the stage of the waters at this point of overflow by this first section, if it brought any water there, tend to increase the overflow at all?

A. As I stated before it didn't materially change the overflow in my judgment for the reason that it simply cut the Mustinka into Twelve Mile creek in a more direct line and facilitated the flowing of water down the Mustinka more readily and with a little greater velocity.

Q. Well, that condition would obtain, I suppose, from the time it joined Twelve Mile Creek, made the junction with Twelve Mile Creek—it would bring no more water into Twelve Mile Creek?

626 A. It brought more water in more directly and it was discharged more rapidly. In a state of nature the water was accumulated in the detaining basin and was discharged slowly, so that going through into Twelve Mile creek at a point where it was really a part of the detaining basin did not materially change the amount of water that flowed down the Rabbit in flood stages that I could see.

Q. Did it make flood stages more frequent at that point?

A. No sir, the only thing it did was to transfer a portion of the waters further down the Mustinka and deposit them in the basin of the Mustinka, creating a second detaining basin.

Q. It brought more waters into Twelve Mile creek and to this point of overflow, but it didn't raise the waters any?

A. No, it decreased the waters in the detaining basin and lowered that more rapidly than it would in a state of nature.

Q. It took them away and brought them down and deposited them at this point of overflow but that didn't raise the stage of the water any around this point of overflow?

A. Not perceptibly, and didn't change conditions much as to the amount of water that overflowed into the Rabbit river.

Q. Do you think just as much overflowed into the Rabbit river as in a state of nature?

A. I think nearly as much.

Q. Well, wouldn't it be just as much? Would it lessen that any?

A. Yes sir.

Q. How?

A. It would shorten the duration of the overflow.

Q. Shorten the duration of the overflow—why?

A. Because there was an additional channel up through there carrying the waters more direct and the flow was accelerated.

Q. The flow was accelerated and the waters arrived there more quickly than they did in a state of nature—is that true?

627 A. They didn't arrive more quickly, but they were taken care of after they got there more quickly.

Q. By what?

A. By the Mustinka ditch.

Q. There wasn't any Mustinka ditch there then?

A. Well, you are talking about the time when the first Mustinka ditch was put in.

Q. Well, you say they got there at that point of overflow a little more quickly than in a state of nature after the construction of the upper section of the ditch, that is what I am talking about—they got there more quickly?

A. Yes sir.

Q. How were they taken care of?

A. Carried more uniformly down the Mustinka river and deposited by the natural Mustinka river than in a state of nature.

Q. Why?

A. Because the waters were brought there by the direct channel and not allowed to overflow the detaining basin of the Mustinka river and the Mustinka river in the early spring time would not fill up as rapidly and consequently the high stage would not be for as long a period as it was after the new ditch was put in.

Q. Then, as I understand you, more water went around this bend and on down into the Mustinka and down into Lake Traverse after the first section of the ditch was completed?

A. Yes sir.

Q. And less went over into the Rabbit river?

A. I didn't so state. I stated I thought about the same.

Q. Didn't you say that probably there was less?

A. I thought it might have been less, but I think it was about the same.

Q. I- couldn't have been more?

A. I don't think so.

Q. Why?

628 A. For the reason that the water had a better outlet.

Q. Why?

A. The state putting in an additional channel.

Q. Well where did the water have a better outlet at this point of overflow after that first section was constructed?

A. The water were carried into the Mustinka river in a more regular and at a more uniform stage, while in a state of nature they were allowed to overflow and the channel in the early period in the spring would not be running at its full capacity. After the new ditch was put in the waters were carried along quicker on the break-up.

Q. Then, as I understand you, the main point of the trouble arising from the first section of the Mustinka ditch was not that it brought more water there, but it brought it more quickly?

A. It brought more water down the Mustinka and brought it more rapidly.

Q. So that there would be a larger quantity coming down into Lake Traverse and going there more rapidly than before the construction of the first section?

A. Yes, sir.

Q. And that would raise the waters of Lake Traverse correspondingly of course and result in a flooding of these lands in the Bois de Sioux valley?

A. I said it transferred the basin lower down and the waters would

accumulate at a point above the Milwaukee tracks in the Mustinka basin.

Q. I thought you said it ran away more quickly down the Mustinka?

A. From the juncture of Twelve Mile Creek and Mustinka Creek at the point where they left the upper detaining basin they did.

629 Q. This safety valve, as you call it, in a state of nature formed by the Rabbit river which was really one of the mouths of the Mustinka, was not operative to assist in the removal of this water from the point of overflow after the construction of the first ditch?

A. The Rabbit river you refer to?

Q. Yes.

A. The Rabbit River only took water in high stages and when the water receded the Rabbit river ceased to be of value as an outlet.

Q. Then, as I understand it, this safety valve formed by the Rabbit river was operative only in times of flood?

A. Yes sir, the Rabbit river was operative only in times of flood.

Q. It took care of the water only in flood stages?

A. Yes sir. Part of the water went over there only in high flood stages.

Q. And it doesn't do that now?

A. It does when it breaks over the dike.

Q. You mean this County Ditch No. 10 at the south line of Section 6?

A. I mean that the ditch at the south line of section 6, with the embankment along the edge of the ditch.

Q. Then as soon as it breaks through that dike it goes north the same as in a state of nature.

A. Yes sir.

Q. So that the main trouble there in shutting off this escape valve, if I may call it so, formed by the Rabbit river, is this dike at the south line of Section 6?

A. That is the cause of the water being prevent- from flowing over there in high stages.

Q. As a matter of fact, Mr. Ralph, there is no overflow into the Rabbit river at this point of overflow described by you

630 in any of the years 1898 down to the year 1915?

A. I was never in that locality during that time in high water, but I would think the country was generally overflooded there and the flood waters as a consequence flowed down the Rabbit river.

Q. What would you say as to whether my question states the fact or not?

A. I would say it didn't.

Q. But if it be true that there wasn't any overflow there from and including 1898 down to the construction of this second section of the Mustinka ditch and that there was an overflow subsequent to the construction of the Mustinka ditch in 1915, 1916 and 1917, your theory that this ditch diverted the waters from going over into the Rabbit river would fall?

A. I said that the ditch only diverted the waters at the crest of the flood. At stages above 997 feet the waters would flow down the Rabbit river, but stages up to that no water would flow down the Rabbit river from the Mustinka.

Q. In a state of nature?

A. In a state of nature.

Adjournment taken until 1:30 p. m.

631 September 20, 1917, at 1:30 p. m.

GEORGE A. RALPH, being recalled for further cross-examination, testified as follows:

Examined by Mr. Palmer:

Q. What stage is the crest of the flood at which you stated that the water goes over into the Rabbit river from the point you have marked "E" on Complainant's Exhibit 5?

A. At any stage above 997 and up to the highest I have known it to be, which is about 1,000 feet.

Q. The highest that you have known it to be is 1,000 feet?

A. Yes, sir.

Q. At that elevation of 1,000 feet at the point of exodus of the water over into the Rabbit river, what quantity of water under present conditions would be flowing through this cut-off ditch extending from the junction of the ditch with Twelve Mile creek over to where it again enters the main Mustinka?

A. Approximately 2,400 second feet.

Q. Now, kindly give me the figures by which you arrived at that conclusion.

A. There is a cross-section area of 504 square feet and a velocity of 4.77 feet per second, a discharge of 2,404 second feet.

Q. I didn't ask you that; I asked you by what process you arrived at the conclusion that at a stage of 1,000 feet at the point marked E on your map, Complainant's Exhibit 5, 2,400 feet second feet would be passing through the cut-off.

A. The cut-off would be banked full when the water was at that stage and that banked full, as my measurements are determined, it would have a cross-sectional area of 504 square feet.

Q. When the water is 1,000 feet at the point "E" what
632 is it at the cut-off ditch near the point marked "N"?

A. It is considerable higher.

Q. I want to know the difference in the elevation between the point marked "E" and the cut-off ditch, the water surface, the cut-off ditch at the beginning of the new ditch.

Mr. Bronson: I object to that question as too indefinite because the ditch might have a different elevation at different parts.

A. It would have an elevation between 1,003 and 1,004 feet, as nearly as I can determine.

Mr. Palmer:

Q. How do you get that?
A. By running levels over the ditch and determining the——
Q. Let me see those levels.
A. I haven't got them. Those levels were run when I run the survey of the ditch and they are in an entirely different book, the profile shows that is on file.
Q. If you haven't got it, why do you say it is 1,003 and 1,004?
A. I can get it and I am familiar with it, and it is on file in the office of the state drainage engineer.
Q. What is the elevation in the bottom of the cut-off ditch at that point, by actual measurement?
A. It is about 992 approximately, it is a little uneven there.
Q. Now, the depth of the water then between 1,003 and 1,004, call it 1,003½, what depth would that give the water?
A. 11½ feet.
Q. And in your computation of 2,400, you assumed it to be what?
A. 12.
Q. And what slope do you say you assumed——
A. Point .0004.
633 Q. Let me see the figures by which you figured that slope. You say the elevation is 992 in the bottom of the ditch?
A. The elevation at that particular point.
Q. Now, take a point 1,000 feet westerly, what is the elevation?
A. I couldn't give you offhand now.
Q. 500 feet?
A. I couldn't state because I haven't got the notes of that ditch survey here.
Q. 1,500 feet?
A. I couldn't state, I say.
Q. You can't give me then any of the figures by which you obtained that?
A. No, not without consulting the records.
Q. What records?
A. The records of the survey of that ditch and measurements, but I know——
Q. You mean when you planned it?
A. Yes, sir, when I made the survey.
Q. Isn't it true, Mr. Ralph, that the slope in the bottom of that ditch for the first 1,800 feet is really uphill?
A. That doesn't determine the velocity. I know nothing about—I care nothing about what the slope is for the first 1,800 feet in the determining of the hydraulic gradient of that ditch so as to be able to determine the flow of the water, and the unevenness of the bottom makes no difference.
Q. It would run up-hill just as fast as it would down-hill?
A. That is found in the bottom of all hills and it is not how you determine velocity. You must first determine the hydraulic gradient and then base your calculations on the hydraulic gradient
634 and not on the unevenness of the bottom of the river.

Q. How do you determine the hydraulic gradient?

A. By numerous measurements along the ditch at different places so as to determine the slope per mile.

Q. Then it does—the hydraulic gradient then is determined by the slope?

A. Yes, sir.

Q. And isn't it true, Mr. Ralph, that the slope in the bottom of that ditch, cut-off ditch, from the beginning of the new part to where it joins the main Mustinka is represented by the figures .0002 instead of .0004?

A. No, sir.

Q. Let me see your figures that prove that statement is incorrect.

A. I stated that those figures and that book and those profiles are on file in the office of the state drainage engineer.

Q. Do they show how this ditch was actually constructed?

A. They show how it was planned and show the levels along the surface and along the bottom when it was cut to grade.

Q. It was cut to grade?

A. It is below grade now.

Q. You know that it was constructed exactly according to those plans?

A. I know that no ditch ever was constructed exactly according to plans because it is a physical impossibility. It was constructed as large as the plans and fully as deep as the plans called for.

Q. Now, how many cubic feet of water would it take to raise the level of Lake Traverse from 976, as you say it might obtain in a state of nature, to 977?

A. I couldn't tell you off-hand, it is quite a calculation. I would have to stop and figure it out.

Q. On what then do you base your statement that the wa-
635 ters diverted by this new ditch raised Lake Traverse from 976 to 977, where are your figures?

A. On what do I base my statement?

Q. Yes, where are your figures?

A. On the fact that the detaining basin was entirely destroyed, that the waters that were naturally detained there were led out and carried down the Mustinka river, and on the further fact that the Mustinka ditch, particularly the extension that was constructed in 1914 to 1915, more than doubled the amount of water that was carried down the Mustinka and discharged into Lake Traverse.

Q. That is a general statement?

A. Yes, sir.

Q. And an argument; now, I want to know on what figures——

A. It is not an argument——

Q. Where are your figures on that; where are your figures to show that Lake Traverse by means of this cut-off ditch was raised one foot?

A. The figures are down in my office on a lot of sheets of paper where I have been calculating and figuring and then I put the result down——

Q. Will you get them?

A. I think I can get them, yes, sir.

Q. And let mee see them?
A. Yes, sir.
Q. To the best of your recollection—you have given your opinion here—what is the quantity of water that would raise this lake one foot, from 976 to 977?

Mr. Bronson: Object to that as already answered, it involves a calculation.

Mr. Palmer:

Q. Do you know anything about that?
A. Yes, sir.
Q. How much is it?
636 A. It would take some time to determine it, I couldn't answer it off-hand.
Q. It would take about 2 billion cubic feet, wouldn't it, Mr. Ralph?
A. I couldn't state off-hand.
Q. How many cubic feet would pass through this cut-off, this new cut-off in a day?
A. That means multiplying 2,404 feet per second by the number of seconds in a minute, the number of minutes in an hour, the number of hours in a day.
Q. Please do that.

Mr. Bronson: That is objected to as immaterial.

A. I don't want to do that. You may do that if you want to.

Mr. Palmer:

Q. You haven't done it?
A. Sure I have, many times.
Q. How many days would this cut-off have to run full to the top in order to furnish enough water to raise Lake Traverse a foot; how much or how many days do you assume that it ran, rather?
A. I didn't figure independent of all other sources of supply for Lake Traverse and I couldn't answer that question.
Q. You didn't assume then any certain number of days that this cut-off would run full in order to raise this Lake Traverse one foot?
A. No, I didn't assume any number of days. I assumed——
Q. Did you not assume ten days?
A. I assume,—well, there was, ten days was considered in the calculations, but I determined that the cut-off added to the waters that would go in there naturally would raise Lake Traverse at least one foot above the state that it would reach in a state of nature.
Q. Well, you don't mean to say you guessed at that; you
637 based it on some figures?
A. I based it on figures.
Q. You determined it by figures?
A. Yes, sir.

Q. Can you tell us anything about how many days you assumed that this cut-off would run full?

A. I couldn't tell you.

Q. Wasn't it ten days?

A. I think possibly it was.

Q. In order for the cut-off to be full there had to be a stage of 1,000 down at the point marked "E" on this map, Exhibit 5?

A. The cut-off would be full half a mile east of the junction of the Twelve Mile creek when the stage was only 998 at the upper end.

Q. I thought you said it would be full clear to the banks at the stage of 1,000?

A. It would at the stage of 1,000 at the point two miles north.

Q. You say that you think it was at a stage of 1,000 at the point "E" one day?

A. I don't think that it was at that stage for much longer than a period of one day, at that point. It was two miles away from the cut-off ditch, three miles.

Q. How much of this extra foot; assuming that it would take 2 billion second feet to raise this lake a foot, how much of that do you think in a state of nature would have gone over into the Rabbit river?

Mr. Bronson: That is objected to because it is too indefinite as to time and because it does not take into consideration whether the two billions were discharged under artificial conditions or not.

638 Mr. Palmer:

Q. Can you answer that question?

A. Rather hard to answer because it is so indefinite.

Q. Just about as indefinite as your computation, is it?

Mr. Bronson: That is objected to as argumentative, to the witness, not proper cross-examination.

Mr. Palmer:

Q. If you will kindly indicate wherein it can be made more definite I will be glad to amend it.

Mr. Bronson: That is objected to as asking the witness to propound a question instead of counsel.

Mr. Palmer:

Q. Will you do so?

A. No, sir. I don't propose to give you questions to answer.

Q. What part of the water that was diverted from its natural course and situation and carried down into Lake Traverse, would by nature have gone into the Rabbit river?

Mr. Bronson: That is objected to as too indefinite, time not fixed.

Mr. Palmer:

Q. In your opinion, in the year 1916.

A. Do I understand that you are assuming that things were in a state of nature in 1916?

Q. You have testified that in your opinion the water that was diverted from going over into the Rabbit river by this ditch and brought by this ditch from its natural detaining basin in the delta zone, raised Lake Traverse from a stage of 976 to 977. Now, I am asking you what portion of that water was diverted and taken away from its natural detaining basin and artificially brought into Lake Traverse would, in a state of nature, have passed over into the Rabbit river?

A. That quantity would, as I stated before, be hard to determine, but I would say it would be possibly 10 to 25 per cent of at least 50 per cent that passed off through some other channels or in some other way than going down the Mustinka. In a state of nature I stated that at least 50 per cent of waters that flowed down
639 from the watershed of the upper Mustinka were either detained in the detaining basin or passed off at flood crest down the Rabbit river. The amount that flowed down the Rabbit river would be hard to determine for the reason that it would depend on how long the flood remained up at a high crest. If it remained at stage 998 for a considerable period, very little of it might go down the Rabbit river and a large amount would accumulate in the detaining basin. *It is* remained at stage 1,000 for a considerable period, quite a large part of it would go down the Rabbit river; so it is hard to answer that question.

Q. Well, the substance of your answer is, it would be about 50 per cent?

A. No, sir.

Q. About 25 per cent of the 50?

A. I stated from 10 to 25 per cent of the 50 per cent.

Q. And the balance of that 50 per cent would have settled on the delta zone?

A. Yes, sir.

A. And there remained?

A. Yes, sir, evaporated.

Q. You have stated that the Delta zone, being a large swampy area and overgrown with rushes and aquatic grasses detained this water for a considerable period and some of it permanently?

A. Yes, sir.

Q. Would it be detained longer by cultivated farms in that area than it would if it were covered with the natural sod and grasses?

A. That would be a physical impossibility, to cultivate that land in a state of nature.

Q. That is, this land that you have called the delta zone, colored light blue?

640 A. Yes, sir.

Q. I wish you would let me see your figures by which you determined the limits of this delta zone.

A. The limits of the delta zone were determined from numerous surveys made at various times since the year 1907. I surveyed a ditch along the south side of the delta zone and examined that portion of the delta zone, I think, in the year 1907, and then I run levels north along the east side of the delta zone from that ditch northward toward the Mustinka that same fall——

Q. I don't care anything about that, I simply asked you——

A. I have traveled over the delta zone at numerous times since that time and I run levels down the old Mustinka state ditch and levels on the line north from that ditch and those levels are in different books, and I transferred the results of those levels on maps, and the map that I have made here is prepared from those notes.

Q. So you can't give me the figures that you used in your actual determination of the limits of this delta zone?

A. Not off-hand, no, sir

Q. Now what did you assume as the limits of the delta zone on point of elevation?

A. The elevation did not determine the limits. It was the large area overflowed there and saturated, even where there was considerable slope on the surface, for the reason that the surface was very irregular, with numerous hillocks and ridges that intercepted the flow of the water.

Q. Those hillocks and ridges intercepted the flow of the water then?

A. Yes, sir.

Q. They are still there, I apprehend?

A. Well, they have been cut through by ditches and roads to some extent.

641 Q. Well, they were not cut through by this state ditch?

A. They were along the line of the ditch.

Q. But otherwise the ditch would not affect those natural obstructions and the flow of the water?

A. The ditch wouldn't obstruct the flow of the water, you say?

Q. Would not affect the natural obstructions?

A. It did affect them where they were cut through. The Mustinka ditch is about 15 feet at the lower end of the original ditch and back two miles from its outlet into Twelve Mile creek it is only about 4 or 5 feet, so it cuts through quite a ridge.

Q. But these other ridges to the south, those have been cut through by, you say, county and judicial ditches, have they?

A. I don't know as I stated that.

Q. I note that you have, on the southeastern side here of this delta zone, an elevation of 1045; that is about 45 feet above the elevations at and around the confluence of the several parts of the Mustinka?

A. It is something over 1040.

Q. So that, to have any conditions right at this confluence affect the delta zone clear to the southern and southeastern part, you would have about 40 feet of water at this point of confluence?

A. No, sir.

Q. Why?

A. As I stated before, there are numerous ridges running across

the delta zone, numerous knolls, numerous depressions or places where pools collect, and that the whole delta zone has the appearance of lake surface in times of high water and here and there a ridge sticking up intercepting the flow of water.

642 Q. And you think that the cutting through of this ditch would draw the water clear from the southern and southeastern limits of the delta zone?

A. The cutting through of the ditches that have been put in as resulted in the drainage of the delta zone.

Q. The other ditches?

A. All the ditches, the state ditch and ther other ditches, the state ditch was the outlet?

Q. The Twelve Mile creek and the Five Mile creek did they have anything to do with this flooding of the delta zone?

A. Yes, sir.

Q. What?

A. They contributed to the flooding of the delta zone.

Q. I suppose that nature intended them to contribute to the draining of the delta zone?

A. It didn't make a very good job of it.

Q. Then Five Mile and Twelve Mile creeks, in what manner did they contribute to the flooding of this delta zone?

A. The upper reaches of the Twelve overflowed and spread over a large area flowing down towards Five Mile. The Five Mile creek for its last seven or eight miles was overflowed all the way and run through marshy, overflowed land.

Q. How frequently have you personal knowledge of the overflow of any portion of the Twelve Mile creek?

A. Prior to 1909 and up to 1909 it overflowed frequently, especially—well, I will give it to you on the map—in Township 126 and Range 44 and 45——

Q. Just a moment, I thought I made that sufficiently definite; in the delta zone.

A. It didn't overflow much in the delta zone because through the delta zone it is—it don't go through the delta zone, it goes along the side of it. It has high banks and it was necessary to cut very deep through the banks to get into the Twelve Mile creek.

643 Q. Then through the delta zone the Twelve Mile did not overflow. How frequently did you have personal knowledge that the Five Mile overflowed in the delta zone?

A. It overflowed whenever the Mustinka overflowed. Every time it was high water and I have been in there the Five Mile creek was a lake for four or five miles at its lower end, its lower reaches.

Q. Four or five miles from its confluence with the Mustinka the Five Mile was a lake?

A. Yes, sir.

Q. About how wide a lake?

A. It spread out as I have described the delta zone. It was a watery waste along the Mustinka from a point about a mile west of the Great Northern track and down nearly as far as Twelve Mile

creek and along the Five Mile Creek from the Herman road northward was generally wet and marshy.

Q. Had the appearance of a lake surface?

A. Had the appearance of a wet marsh.

Q. And I suppose in times of those overflows, particularly in spring, it had the appearance of a lake surface?

A. Yes, sir, to some extent.

Q. Those conditions obtained also to the northward from where the Mustinka ran through clear up to the northern extremity of what you marked the delta zone here?

A. Yes, sir.

Q. I wish you would define and point out more accurately the limits of this new detaining basin which you say was created by the construction of the first section of the Mustinka ditch.

A. It included the entire valley of the Mustinka river from a point about one-half mile or else upstream from where the Milwaukee tracks cross the river, upstream as far as what is known as the Swede church, which is at the point there the lower end of the two mile cut-off joins the Mustinka.

644 Q. And extends for about how far to the eastward?

A. It was appr-ximately 80 rods wide, some places not so wide.

Q. Some places wider?

A. Yes, sir, I think so.

Q. It would be about the average width?

A. Yes, sir.

Q. And on the westerly side; about how —, westerly side of the river——

A. The width of the overflowed area was on both sides.

Q. How far was it on the easterly side?

A. In some places the high banks came closer. The average width of the overflowed area would be from 20 to 80 rods.

Q. Which side?

A. Both sides.

Q. How far would it be on the westerly side?

A. I say that the width——

Q. Would it be wider on the westerly side — on the easterly side?

A. Some places wider and some narrower.

Q. In general was it wider on the westerly side?

A. Well, I will say, when you get down about half-way there was quite a wide area there; I think that was the widest part I noticed.

Q. Wide on which side?

A. On the east side but above that the widest area was on the west side and I couldn't tell you just—to describe that, only just from observation.

Q. How many acres do you think there was in that flooded basin there?

A. I would say there was 700 to 800 acres overflowed, probably more than that. I would have to figure it a little.

645 Q. About how deep did the water stand in this new detaining basin?

A. It stood so deep that the——

Q. In feet I am asking you?

A. It stood so deep that the farmers along there complained that it overflowed into their barns and that would have to be about 3 feet deep.

Q. 3 feet deep?

A. Yes, sir.

Q. And how long a period would that water stand there 3 feet deep in the spring of the year?

A. Quite a long period, sufficiently long to destroy the use of the land.

Q. Two months?

A. I think that it would be wet there for at least two months.

Q. And then it would go on down into the Lake Traverse?

A. Or evaporated, yes, sir.

Q. Or evaporate?

A. Yes, sir.

Q. What held that water back and retained it in that basin, this new one?

A. Insufficient outlet.

Q. Where?

A. Below the basin.

Q. At what point?

A. From the Great Northern railroad track——

Q. You mean the Milwaukee?

A. Milwaukee railroad track to a point about 3 or 4 miles down stream below the crossing of the Milwaukee track.

Q. What was the lower rim of this new detaining basin?

A. It was some distance down-stream below Wheaton.

Q. Below the railroad track about how many miles?

646 A. I couldn't say, from three miles until you get to a place where the valley was wider again.

Q. To a point about three miles; then the lower rim of this new detaining basin was about three miles below the railroad track?

A. Yes, sir.

Q. About how wide was this flood plane—is it proper to call it that?

A. You may call it that if you choose.

Q. About how wide was this flood plane below the railroad track?

A. It wasn't very wide, just the channel and the stream, the banks were high below there.

Q. Well, then the land was not flooded?

A. No, sir.

Q. The land was flooded wholly above the railroad track?

A. In the valley, in the immediate valley of the creek——

Q. Beginning about how far north?

A. Above the track?

Q. Yes, sir.

A. At Swede church.

Q. I mean, at the lower end.

A. From one-quarter to one-half a mile, as I recall it now.

Q. It began about a quarter to half a mile above the Milwaukee railroad track and extended clear up to the Swede church?

A. Yes, sir, and some above that, but the valley was narrow above that point.

Q. And below the railroad bridge you don't think any of the valley was flooded?

A. Well, a little but not much. Banks were high and
647 the stream very crooked.

Q. Now, the banks were high and the stream crooked below the railroad bridge and you say there was a rim down there two miles and a half below the railroad bridge?

A. There was a higher elevation of land.

Q. Well, the river cut through it?

A. Yes, sir.

Q. That is what made the banks higher?

A. Yes, sir.

Q. What did it have to do with detaining the flow of the water if the river cut through it?

A. The channel was insufficient to carry off the water as fast as it was carried down there.

Q. Did it run pretty freely through the railroad bridge, thro- the bridge there by the railroad track in the spring?

A. Yes, sir, fairly so, it followed the winding of the stream.

Q. Was there any point for the egress of the water except the natural channel by the railroad bridge?

A. No, sir, it all passed by the railroad bridge.

Q. Did you observe the conditions there in the spring of 1916 in this new detaining basin?

A. Not particularly; I noticed the water when it was pretty high but it went down rapidly and I can't say much about that in 1916.

Q. Would you say that as large an area was flooded there in 1916 as in previous years?

A. It might have been for a short time when the ice was going out. There was a jam of ice above the railroad track and there might have been quite an area overflowed at that time. I couldn't say.

Q. This jam of ice was in the ditch down there, was it?
648 A. Yes, sir.

Q. Is that the year that the water ran through some mile and a half or so west of the railroad bridge and tore out the track for a considerable space?

A. A mile and a half west of—the track runs nearly north and south.

Q. Well, northwesterly?

A. I couldn't say as to that.

Q. Do you recollect about the railroad company building another bridge at that point about a mile and a half or so northwesterly of the other bridge, to let the waters through in that channel?

A. Not a bridge, they may have made a culvert there—they were looking after their track——

Q. Where did that water go after it passed under the track at that point?

A. I presume it went west.

Q. I thought you said the land was higher there? You say it went west?

A. I presume it did; I don't know just what point you mean.

Q. It didn't go back in the channel?

A. I don't know that it did.

Q. It couldn't very well go back into the channel if the land was high and there was no flood plane below the bridge to speak of, you say?

A. It could go back the same way it came out.

Q. Back up?

A. I presume.

Q. What is your knowledge or information as to the conditions there in 1915 in the summer flood; was there water in this new detaining basin?

649 A. There was a high stage of water but I don't know just what—I have no knowledge now of just how much of the new detaining basin was overflowed, I couldn't say.

Q. And 1917, what do you know about it, during that spring?

A. I don't know of any water overflowing there in 1917.

Q. Do you know that there didn't?

A. I didn't see water overflowing: I wasn't there when the spring waters were going off in 1917, I don't know what happened.

Q. Well, your assumption being that this ditch destroyed that detaining basin, the new one, of course you assumed that——

A. I didn't say,——

Q. —that there was no flooding there in 1915, 1916 and 1917?

A. I didn't say it destroyed it.

Q. It is still there?

A. It helped some, the river is improved and straightened to some extent but it would take a much larger channel to take care of the flood waters.

Q. I thought you said the other day that this ditch was a success?

A. I said it was a success? I didn't say so.

Q. You didn't intend to say so?

A. No, sir, it helps considerable in carrying the water down.

Q. It is a partial failure so far relieving the flood-conditions along this new detaining basin?

A. It isn't just as I would have planned it if I had had my own way about it.

Q. Who planned it?

A. I did but I planned it on order of the court.

Q. The court didn't tell you how to plan it, did he?

650 A. I only had so much money and we did the best we could with $35,000.

Q. If you had more money you would have planned it bigger?

A. If I had more money and had my own way about putting the ditch I would have put it down in the Rabbit river.

Q. The purpose of this new section of the ditch was to carry away the water that had accumulated in this new detaining basin and was flooding the lands there, Mr. Ralph?

A. Yes, sir.

Q. Now, the reports of the legislative committee appointed in 1909, I think it was, was made at the time that you were state drainage engineer?

A. Yes, sir.

(Report is marked Defendant's Exhibit 5.)

Mr. Palmer: We offer in evidence Defendant's Exhibit 5.

Mr. Boutelle: I want the record to show we will not make any objection to that on the ground that it is a copy but that we call upon the state to produce the exhibits referred to in those findings.

Mr. Palmer:

Q. Now, the report of that committee recites: "That from the testimony of the state drainage engineer," does that mean yourself?——

A. I think so.

Q. —"it appears that if the said state ditch should be extended from its present outlet, then west about 2½ miles to where it will again intersect said river, thus cutting off a large bend in said river, and thence continuing downstream in said river to such a point and place as it shall be found necessary to obtain an adequate outlet for the waters thereof, thence west to Lake Traverse, the desired relief will thus be obtained and that the total cost of such improvements will amount to from $30,000 to $35,000." The desired relief——

651 Mr. Boutelle: I move to strike the statement of counsel reading from this instrument out as the instrument is its own best evidence and it is not questioned.

Mr. Palmer: The question is not completed.

Q. Now, the desired relief referred to in this paragraph is the draining away of this water that was accumulated in this new detaining basin that you have spoken of?

A. I don't think that I appeared before that committee any more than to furnish an estimate of what it would cost to dig a certain cut-off ditch and that estimate was made before any surveys were made down there.

Q. I ask you this, what was your understanding of the desired relief referred to in that report of the committee?

A. I understand that they meant the relief of this lower detaining basin but, as I stated, my best knowledge now is that I was asked to make an estimate of the cost of the cut-off ditch and I am quite positive that that estimate was only to include the two miles and a half of the cut-off or something slightly over that, and that I made that estimate, but I don't believe that I appeared before the committee. If I did it was merely to submit that estimate and I know

that I was very much in favor of putting a proper ditch down the Rabbit river instead of carrying more water into Lake Traverse.

Q. I think that somewhere in there you answered the question that the desired relief was the taking care of the—so far as you know, the taking care of the water in this new detaining basin?

A. Yes, sir.

Q. The ditch you say was only a partial success in taking care of the water in that detaining basin?

A. I say it didn't entirely prevent the overflow.

Q. Well, to what extent have those lands been flooded in the years 1915, 1916 and 1917, as compared with what they

652 were before?

A. I couldn't state.

Q. Isn't it true, Mr. Ralph, that those lands in this new detaining basin you have described and for which this relief was desired, as referred to in this committee's report, have been flooded to the same extent in 1915, 1916 and 1917 as they were before?

A. I couldn't state.

Q. Do you think under present conditions the waters would be detained there just as long as they were before?

A. No, they would not but there would be much more water carried down there, so that the channel would have much more water to take care of than it would in a state of nature.

Q. And that that might result in just as much flooding of those lands?

A. Yes, sir.

Q. And I think I asked you the other day about the ditch following the first six miles below the juncture of the cutoff with the former river. If it did that, if the ditch did that, it would not facilitate the flow of the water very much?

A. It might by cutting out high places in the bottom of the channel, cutting off banks on one side or the other, and in that way straightening the channel and in widening the channel might facilitate it very materially.

Q. If they took out banks and threw them on top it would create other banks across the flood channel, wouldn't it?

A. No, sir.

Q. It would not?

A. No, sir.

Q. What was done with the earth that was taken from those excavations?

A. They were left in banks parallel to the flood channel but not across the flood channel.

653 Q. There are none of those banks that extend across or partially across the flood channel?

A. They extend partially, they are built along the sides of the channel in the usual way.

Q. If the ditch followed the old river for the first six miles in its sinuous course in and around the old flood channel of course those banks would be piled up across the flood channel from one side to

the other. I ask you to assume there are no cut-offs in the first six miles below the first cut-off.

A. And to assume that the channel winds back and forth across the valley?

Q. Same as the old river did.

A. It doesn't appear to wind, its runs apparently straight.

Q. The old river runs straight?

A. It appears that way.

Q. Don't you know anything about it?

A. Yes, sir, and I know it was improved some.

Q. Does it straighten it any in that first six miles?

A. Yes, sir.

Q. I think you stated the other day you thought in the first six miles below the juncture with the cut-off from the east that the length of the river was reduced about one-half?

A. I didn't state so.

Q. You didn't state that?

A. No, sir.

Q. How much do you think it is reduced?

A. I couldn't state. It is reduced considerably because the channel is of irregular width and the thread of the stream swept from one side to the other but it had numerous short kinks and those were cut out, but I couldn't state how much.

Q. That is what I say, the old river ran in a sinuous course?

654 A. Not as you stated, back and forth across the valley.

Q. Did the ditch follow the old river, follow the channel generally of the old river?

A. Practically, cutting off little knobs on one side or the other and in that way improved the channel.

Q. But no cut-offs at all?

A. I wouldn't say as to that. As I recall it now there was one or two cut-offs.

Q. You say there are?

A. Yes, sir.

Q. I want the figures by which you arrived at your statement on this map, Complainant's Exhibit #1, that there was a maximum run-off from this drainage area of 2 second feet.

A. That was an estimate of the maximum monthly run-off.

Q. You mean the average?

A. Yes, sir, average for the month, that was an estimate.

Q. Average maximum?

A. For a period of one month but I stated that——

Q. You mean there was 2 cubic feet of run-off every second for a full month?

A. At extreme flood stages.

Q. What month was that?

A. That was my estimate of the probable run-off of that area at flood stages.

Q. In a month?

A. Yes, sir, and that the run-off per second foot for a short period

might go as high as 7 or 8 cubic feet per second per square mile of area.

Q. When you say maximum, how many maximums have you got?

A. Maybe that isn't a proper way to express it. It may be better to say that the average run-off in flood periods for a month would be 2 second feet per square mile of area.

655 Q. Every second for a full month.

A. Yes, sir.

Q. Where did you get that?

A. I got that from consulting the run-off and the volumes of water that had been collected and stated it was my opinion there may have been periods that the run-off was that much and that the maximum run-offs in extreme floods for short periods would be probably 7 or 8 per second per square mile on the upper Mustinka watershed.

Q. I asked you what month, that is, where there was—you say that was the maximum. Now what month was it that there was an average run-off of 2 square feet per second in the month; give me the month?

A. In the month of June, 1914, there was 12.53 inches of rainfall at Morris, there was 10.54 at Wheaton; that is more than one-third of the entire precipitation, average precipitation, for the year in that one month. Going down through the years—in the year 1908 there was 10.78 inches of precipitation in the month of June and I think there is a month here somewhere where there was——

Q. Where was that?

A. At Morris.

Q. Is Morris in this watershed?

A. It is adjacent to it, and is one of the stations where there has been a long record kept.

Q. How far is it away from this watershed?

A. On the edge of this watershed.

Q. About how far away is it from the watershed?

A. I couldn't say, a few miles.

Q. All right, go ahead.

A. In the month of August, 1899, there was 11.68 inches

656 of rainfall at Morris in one month.

Q. How does that go to prove, Mr. Ralph, that there was ever a month when there was two cubic feet of water run-off from this watershed every second in it?

Mr. Bronson: He hasn't stated that, he said the average monthly maximum.

A. Some days in the month there wouldn't be much.

Mr. Palmer:

Q. You don't mean 2 cubic feet of run-off in the whole tract?

A. Well, I mean the maximum.

Mr. Bronson: He said average.
The Witness: Yes, sir.

Mr. Palmer:

Q. Tell me what you mean by an average maximum?

A. I say that may not be the proper way to express it but it is my opinion, after examining the conditions, that an average of 2 second feet off the upper slopes of the watershed per month in the extreme flood stage was probably the greatest run-off that they have ever had and taking into consideration that there are months where the precipitation was practically 12 inches on the entire watershed the amount of water, of course, would be great and 2 second feet per square mile would be a very small portion of that.

Q. Now, you take the fact that there were some months that they had 12 over at Morris; what do you assume to be the rainfall in this maximum month that you have reckoned from?

A. 12 inches, practically 12 inches.

Q. Now, what do you take into consideration in estimating the run-off from that 12 inches, the amount of run-off?

A. What do you mean, what factors do I take into consideration?

Q. Yes, sir, what factors?

A. I take into consideration the fact that in a month where
657 there would be such an extreme rainfall as 12 inches, there would be very little evaporation because it would be wet and cloudy that month, also the condition of the watershed as to whether it was saturated at the time or not, and such factors.

Q. And transpiration through vegetation?

A. Yes, sir.

Q. You took that into consideration; what percentage did you deduct for evaporation, if you remember?

A. Evaporation varies; evaporation in the average year in April might be 3 inches, in May—it would depend, of course, on the sunlight and the temperature, might be 4; rather, in May it might be 3 inches and April would be an uncertain month because it is the breaking up of spring; June 4 and July 5 and in August you might get an evaporation of 6 inches, that would depend on the condition of the atmosphere.

Q. In figuring these 2 second feet run-off per square mile, how much did you allow for evaporation?

A. In a month where you get 12 inches of rainfall, you have very little evaporation.

Q. How much did you allow for that?

A. I don't remember.

Q. How much did you allow for transpiration?

A. I don't know just what you mean by transpiration, I don't know where you get the word; it is applied to human beings.

Q. You don't know what the word transpiration means?

A. I don't know what you mean by using it; if you mean the difference in the amount that the plants take up in their growth, that is a factor.

Q. What word would you use for the amount that the plants take up in their growth, what is the correct word for that, Mr. Ralph?

A. Transpiration, that is probably correct.

Q. What are you quarreling with me for?

658 A. That is what you said it was, I am taking you at your word.

Q. Did you ever hear it before?

A. Yes, sir, a little while ago.

Q. What would you use?

A. There are several words I would use; I don't know as I care about conducting any school here.

Q. What percentage did you allow for transpiration then?

A. Evaporation and transpiration, as you call it, are usually considered together.

Q. What percentage did you allow for that?

A. And absorption is another factor.

Q. Absorption by the soil, yes, sir.

A. I say those factors would depend upon the atmospheric conditions entirely.

Q. What percentage did you allow for them in figuring the 2 second feet?

A. I couldn't state right now because every computation would probably have to have a different allowance for those factors. You couldn't use the same factor.

Q. Have you got the figures by which you figured that out?

A. I don't know whether I have retained them or not. I did have figures.

Q. You could make them again?

A. Yes, sir.

Q. I wish you would.

A. I won't today, I want to take my own time about these things. Those are things I would prefer to have plenty of time and not make any calculations on the witness stand.

Q. Will you at the close of the session this evening prepare those figures and submit them in the morning?

659 A. I doubt if I will be here in the morning. I have some very important business to attend to and I would like to attend to it.

Q. What month was this maximum run-off of 2 cubic feet every second in it? What months did you figure to get that, what month of the year?

A. The maximum months of the year of greatest rainfall.

Q. Well, 1916.

A. I have given you the month, I have recited several months.

Q. Well, in June, usually in June?

A. June might be a dry month some years.

Q. Well, June, 1914, 1915 or 1916?

A. I will give you the months if you prefer.

Q. Did you assume any certain definite month that you figured this maximum run-off of 2 second feet per square mile?

A. I figured the maximum or the highest precipitation in any one month in the wet years.

Q. But not a certain month in any certain year?

A. Yes, sir.

Q. What was it, one month?

A. In the month of June, 1908, there was a precipitation of 10.78—

Q. You needn't go through the figures again. June, 1908; what other month?

A. In August, 1899, in June, 1914.

Q. You averaged those?

A. Yes, sir; and then, of course, the condition that prevailed immediately preceding that month.

Q. And where did you measure this volume of water that you speak of? You say you figured the volume of run-off; where
660 did you measure it?

A. It depended on where I wanted to get the run-off and the watershed that I wanted to determine the run-off from.

Q. We are talking about this watershed.

A. This watershed and this part of the watershed to the outlet of the Mustinka into Lake Traverse and the watershed down to the confluence and the watershed down to the Rabbit river where it enters the Bois de Sioux are absolutely different.

Q. I am asking you about this watershed and at what point?

A. This watershed is a very indefinite expression and I don't know what you mean by it.

Q. Well, I am talking about the Mustinka watershed; you say that is the one you figured this 2 second feet run-off on to the square mile.

A. The upper reaches of the Mustinka above, that is in the moraine zone.

Q. All right, where did you measure this volume?

A. I determined it from the slope of the surface of that country, from the natural conditions and from the amount of precipitation and other factors that would enter into a computation of this kind.

Q. Isn't it possible, Mr. Ralph, to measure the volume of water coming from this Mustinka watershed at some point where the run-off could be brought together?

A. It is possible to estimate it.

Q. Wouldn't the natural and proper way and accurate way to do that be to measure, take the gaugings in the Mustinka river below this cut-off and down near Lake Traverse as near as you could get them, and see what the volume was going through there?

A. That would not be proper. The run-off from the upper Mustinka watershed would be much greater than the run-off
661 down there at the gauging station below Wheaton.

Q. Why?

A. Because the water after it comes out of the moraine zone passes over a comparatively flat prairie area and spreads out. Evaporation would be much greater, absorption would be much greater, and the amount of rainfall that runs off on the upper slopes would be much greater than the run-off at the lower slopes, and the gauging station below Wheaton which showed a run-off of 1,600 and some second feet when the gauge was at a stage of 7.9, would show a run-off of something over 4,000 second feet when the gauge was at a stage of 14, which was about its maximum stage, and taking that into consideration it is quite probable that the run-off on the upper reaches of the Mustinka was between 7 and 8 second feet per square mile.

Q. Well, you think that the run-off up on the moraine zone and the upper reaches of the Mustinka that never went down past Wheaton in the world, would damage this land in North Dakota?

Mr. Boutelle: That wasn't your question.

A. I didn't say so.

Mr. Palmer:

Q. Then the only run-off that could do any damage or be material in this case, would be the run-off that went into Lake Traverse, wouldn't it?

A. Yes, sir.

Q. It wouldn't run into Lake Traverse without running down this ditch past Wheaton and into Lake Traverse, could it?

A. Yes, sir, and it did run down the ditch in double as great quantity after the construction of the Mustinka ditch as it did before the construction of the Mustinka ditch.

Q. You stated that about forty times. After the construction of the ditch were the gaugings taken there?

A. Yes, sir.

Q. What year?

A. In the year 1916.

662 Q. What month?

A. In the summer months.

Q. What months?

A. June and July and August, as I recall it.

Q. The proper way to get the run-off from this Mustinka area of Mustinka watershed that was going down into Lake Traverse would be to measure it down there, wouldn't it?

A. I answered that before and told you what I considered the proper way.

Q. Would this be one way?

A. That would be one way, it wouldn't be a proper way to get the run-off of the upper Mustinka water-shed.

Q. What is it done for?

A. It is done for the purpose of getting of run-off of the entire watershed down to that point.

Q. And that is the only run-off that would do any harm by going into Lake Traverse?

A. Yes, sir, the only run-off down the Mustinka.

Q. You didn't mean to put on that map 2 second feet as a monthly maximum run-off for the purpose of showing that that entire run-off went into Lake Traverse, did you?

A. No, not quite that.

Q. Did you take the gaugings for the months of June, July and August, 1916, the year of this flood there below Wheaton and figure from that the maximum run-off?

A. I have access to the government records.

Q. What did you figure the maximum run-off from those gaugings?

A. I figured the maximum run-off was just as I stated.

Q. 2 second feet?

A. No, sir, I figured the maximum run-off was 7 to 8 second feet on the upper Mustinka watershed.

Q. I am not talking about the upper Mustinka watershed;
663 I am talking about the maximum run-off from that entire watershed for a month as computed from those gaugings taken at Wheaton or below Wheaton in 1916.

A. It was—going down to that point?

Q. I want you to tell me how much you computed the maximum monthly run-off to be by the use of those gaugings taken in the Mustinka river in June, July and August, 1916, per square mile, same as you figured the other, those 2 second feet.

A. The maximum run-off in second feet at the gaugings station below Wheaton, based on the gauge readings on the government gauge at that point and on other information that I have was approximately 6 second feet per square mile.

Q. Per month?

A. No, sir.

Q. How much per month?

A. I couldn't state just at that point.

Q. Well, didn't you figure that the same as you figured what you put in your map?

A. I stated how I estimated that 2 second feet. I didn't consider the gauge here at all at that time. That map was made before I had the gauge readings.

Q. If you had the gauge readings you would have figured it from those?

A. I would have used the gauge readings, yes.

Q. I am asking you to use them now and in the same way and on the same basis that you computed those 2 second feet here on your map and tell me what it is.

A. That is a computation that I can not make on the witness stand, I would have to have my own time on it.

Q. We have computed that, Mr. Ralph, and we have it .9 second feet, a little less than 1.00 for a maximum month. Do you think that is correct?

664 A. That may be correct for the month of June, 1916, which has only about one-fourth of the precipitation that has occurred in certain months in that locality.

Q. In 1916 was the time of the flood; I didn't assume that those other years would be material.

A. 1916 was not especially a favorable year for floods; there were other years that were more favorable.

Q. Mr. Ralph, you were going to point out by your field notes the error in this map, Defendant's Exhibit 4, and demonstrate the accuracy of your map, Complainant's Exhibit 5. Will you kindly do that now?

A. I established a bench mark on the bridge at the southwest corner of Section 6. The elevation of that bench mark was determined by carrying the levels through from the fixed U. S. Geological Survey bench marks. I found the elevation of that bench mark to be 1,000.04. I ran the levels from the point on the line between

Sections 6 and 1, where the upper reaches of the Rabbit river cross that section line, said point being about a quarter of a mile south of the northeast corner of Section 6 and the northeast corner of Section 1. I found that the bottom of the channel at the culvert in Rabbit river at that point had an elevation of practically 995 or 994.93. That at a point 50 rods southeast of there the elevation was practically the same. That in running down the section line I found that the road, the surface of the road had an elevation of 999.6 and 998.8 another place, and that a point in the draw, as I call it, or in the channel of the creek 50 rods east of a point on the line between Sections land 6, that is 80 rods north of the southwest corner of 6, had an elevation of 996.6, and that the elevation in the draw near the culvert at the southwest corner of Section 6 was 996.04, and the elevation of the bench mark at the same point was 1,000.04.

Q. Did you take any elevations between those two places you have described?

665 A. I took a level as I stated at the point on which I place my pencil, which is a point about 50 rods east of a point on the section line between Sections 1 and 6, which point is 80 rods north of the southwest corner of Section 6.

Q. Did you go north from there and take levels?

A. No, sir, I observed the channel from there north, I looked at it.

Q. Walked in it, did you?

A. Yes, sir, I walked along it and observed it.

Q. Then the balance of this channel which you put on Complainant's Exhibit 5 connecting those two points, you didn't take from any levels made there, you simply assumed it?

A. Simply observed it as I walked along it.

Q. I understand you to say that along the Bois de Sioux river, beginning at the state line of South Dakota, there was a fall to the north of approximately one foot per mile?

A. There is on the surface of the ground.

Q. Well, what I want to know is what it is in the channel of the river?

A. Depends on the stage.

Q. The bottom of the channel or the slope in the bottom of the channel depends on the stage of the water?

A. No, I don't take the bottom of the channel to determine the hydraulic gradient, it is an improper method, so I don't know what the variations of the bottom are.

Q. That doesn't have anything to do with the flow of the water?

A. No, sir, hydraulic gradient determines the flow of the water.

Q. What do you compute the hydraulic gradient from, maybe I don't understand that?

A. The slope of the bottom of the channel has nothing to do with the hydraulic gradient. It has if you determine it properly

666 but if you determine the irregularities and get the hollows and hills at the bottom of the channel, it is not a proper way to determine the velocity of the water or the hydraulic gradient.

Q. You can't tell me anything about, say, what the beginning of

the highway bridge at White Rock, immediately east of White Rock, you can't tell me what the fall in the bottom of the channel is for the first, say, 9 miles to the north?

A. Not in the bottom of the channel but I can tell you the general slope of the valley from the river. The channel is irregular with deep holes and shallow places.

Q. How wide a channel is that?

A. It is about from 30 to 50 feet, the part that you call a channel. It is not a well defined channel, however.

Q. There is no well defined channel there?

A. No, sir.

Q. Grown up with vegetation, grasses?

A. Yes, sir, to some extent.

Q. Very difficult to determine just where it is located?

A. Yes, sir, at some places.

Q. To get out of Lake Traverse the water has to practically run across those lands there through the valley?

A. Yes, sir, when the lake overflows it spreads over those lands.

Q. If the lake did not overflow they wouldn't run out at all?

A. Yes, sir, it would run out through the channel.

Q. Whether there was any overflow from the lake or not?

A. Yes, sir, speaking of overflow in its proper sense, where the border of the lake or the rim of the lake overflows for a wide area; that overflow might not occur and considerable water would flow out of the lake through the channel.

Q. There are several channels there over on the west side
667 of White Rock?

A. Yes, sir, there is one or two channels through which the water flows at higher stages than the ordinary stage.

Q. Those gradually converge as they go to the north and to the Bois de Sioux, do they?

A. They enter the Bois de Sioux lower down.

Q. Now, then you saw this town of White Rock in 1916 it was inundated?

A. Yes, sir.

Q. And to a depth of about 2 feet?

A. Yes, sir.

Q. And banks and the stores and the school houses and residences?

A. Streets, sidewalks.

Q. Main streets and sidewalks and all parts of it?

A. Yes, sir.

Q. When was that?

A. April 6 and 7, 1916, but it continued for some time after that.

Q. Continued for three months, something like that?

A. Not so bad, it went down after a while but it was—there was overflow water for the greater part of the summer.

Q. When you saw it in April you say the water stood 2 feet deep on the main street of the town?

A. It stood 2 feet deep at places in the town and other places it was only a few inches.

Q. What was it in main street?

A. Crossed the main street at different places, crossed the main street between the railroad tracks and the business center of the town——

Q. What depth was it on main street?

A. Depth of 3 or 4 inches at that point and further west
668 it was two feet deep.

Q. That would bring it up around the banks and the stores in there?

A. Yes, sir, they were taking the children to school in boats.

Redirect examination.

By Mr. Boutelle:

Q. Mr. Ralph, there has been introduced in evidence and you have been interrogated on your cross-examination on what purports to be a copy of the report of the legislative committee which is marked Defendant's Exhibit 5, and you started to or endeavored to state to counsel the part which you had in the proceedings of the committee. I will ask you to state as to whether or not you did or did not approve the construction proposed?

A. I did not approve of the construction proposed. I was opposed to it and stated that a much better outlet could be secured down the Rabbit river.

Q. Did you state your reasons for opposing it?

A. Yes, sir.

Q. And what were they?

A. My reasons were that the outlet down the Rabbit river was much more direct; the distance was from 18 to 20 miles while to carry the water down to Lake Traverse would only increase the stage of Lake Traverse above what it had been in flood times and would be sure to cause the overflow of the lands around the lake and down the Bois de Sioux river, and I thought it was not the proper way to drain off the flood waters from the delta zone. I stated this to Mr. Spooner and Mr. Spooner, I believe, was chairman of the committee, and as I recall it now I wasn't asked to
669 testify to anything except as to the cost of a cut-off ditch from the outlet of the old Mustinka state ditch into Twelve Mile creek across the big bend and for a short distance down the stream, and I estimated that the cost of such a ditch would be $35,000, I believe.

Q. Then, Mr. Ralph, as I understand you, if anything in this report is susceptible of being interpreted as admitting your approval as state engineer of this project, it is wrong?

A. It is wrong. Everybody knows here and up around Wheaton that I was opposed to the scheme; it would cause greater overflow along the Bois de Sioux and around Lake Traverse and I was always opposed to it.

Q. Now, Mr. Ralph, I want to clear up one or two matters, assuming that the artificial conditions resulting from this ditch construction are to continue as they were in the years 1915 and 1916, and

as they are at the present time, what will you say as to the effect on the waters of Lake Traverse in the future and of the Bois de Sioux river?

A. The effect will be to overflow Lake Traverse, to raise it to a stage even higher than it was in 1916, and to cause a greater overflow along the valley of the Bois de Sioux through North Dakota and South Dakota.

Q. Then, if I understand you correctly, as long as those artificial conditions which have been here described obtain or are maintained, these flood conditions in the Bois de Sioux valley will continue?

A. Yes, sir.

Q. Now, Mr. Ralph, we have referred here and you have been interrogated in regard to this area of confluence, so to speak, in and around the main Mustinka channel and the Five Mile creek and Twelve Mile creek and so on and so forth; what was the general character in a state of nature of that entire area in there extending to the east?

670 A. It was a wet, marshy area generally overgrown with rushes and aquatic grasses, and with numerous ridges intercepting the flow of the water and numerous hummocks. The character of the surface was generally uneven, with depressions and slight elevations, but the whole area had the appearance of a wet marsh.

Q. In wet season, then, in times of abnormally high waters or unusually high waters that whole area in there would be what you would call wet land?

A. Yes, sir.

Q. During your cross-examination you stated on several different occasions or mentioned on several different occasions the receipt of complaints by your office as chief engineer of the state from people in this vicinity; what did you mean by that?

Mr. Palmer: That is objected to as hearsay and as immaterial.

A. I meant that immediately after being appointed state drainage engineer, my office received complaints from the people in and around the delta zone and along the Mustinka below the outlet of the original state ditch. The complaints were to the effect that——

Mr. Boutelle:

Q. I don't care so much about that. What I am driving at is this, not to state what was said; did they have reference to the condition of the lands and the waters?

A. Yes, sir.

Q. Was that the occasion, in part at least, of your making detailed investigations on behalf of the state of this area?

A. Yes, sir.

Q. And of finding the conditions as you have described them in your testimony?

A. Yes sir.

Q. And are you familiar with how those conditions have been handled there?

671 A. Yes, sir.

Q. As a matter of fact, there have been laterals and various other systems of ditching constructed all through this area, and such ditches exist at the present time, do they not?

Mr. Palmer: That is objected to as immaterial for the reason that the State of Minnesota is not responsible as a state for any judicial or county or private ditches.

A. That is true, that that whole area has been gridironed with systems of ditches.

Mr. Boutelle:

Q. And I will ask you to state whether those ditches are all a part of the system of which you might call this state ditch the main artery?

Mr. Palmer: Same objection.

A. They are.

Mr. Boutelle:

Q. And this system of ditching to which you have referred in your last answer exists there at the present time?

A. Yes, sir.

Q. And at the present time is acting in relation to the main artery, this main state ditch, in the same manner that you have already described?

Mr. Palmer: Same objection.

A. Yes, sir.

Mr. Boutelle:

Q. Mr. Ralph, I don't know as I understand all the questions that have been pressed on cross-examination, but there has been known to be water in this watershed in times past, I assume?

A. Yes, sir.

Q. The system of ditching that is constructed in there, according to your understanding of the situation are not for the purpose of irrigating arid land?

A. No, sir, I don't so understand it.

672 Q. In one of your answers on cross-examination, counsel asked you in regard to the wet periods existing in a state of nature, and as I recall the answer you stated in substance that it would be about two-thirds of the time since 1896. Did you mean by that, that these lands in the inundated area or overflowed area were under water two-thirds of the time since 1896?

A. No, sir.

Q. State what you did mean.

A. I meant in two-thirds of the years since 1896 there was—would have been an overflow over that area

Q. In an area such as this overflowed area with which we are dealing,—and by the overflowed area you understand I am speaking of the points of confluence of these rivers—what is the action of ditchings?

A. The action of ditching is to collect and accelerate the flow of water and carry it off of the lands adjoining the ditches.

Q. And according to your present judgment and opinion was that action accomplished by the construction of this ditch in this case?

A. Yes, sir.

Q. You have been asked a great many questions in regard to the water that was diverted from the Rabbit river as being the water which raised the stage of Lake Traverse. Now, I wish you would state again, in order to make it perfectly plain, what occasions the rise of the waters in Lake Traverse.

A. The large amount of—you mean in 1916 or since the construction?

Q. Yes, sir, since the construction of the ditch.

A. The large additional amount of water that was carried down through the Mustinka channel by reason of the construction of the original and the final state ditches, known as the Mustinka ditch, and the consequent destruction of the detaining basin in the
673 delta zone which in a state of nature evaporated a large amount of water that under present conditions is carried directly into Lake Traverse.

Q. Did the construction of that ditch have a tendency to concentrate the flow of the waters that in a state of nature would accumulate in that zone?

A. Yes, sir.

Q. And did it, as a matter of fact?

A. Yes, sir.

Q. Did it have a tendency to increase the volume of water discharged in a given time into Lake Traverse?

A. Yes, sir.

Q. And did it as a matter of fact?

A. Yes, sir.

Q. You have been asked a number of questions in your cross-examination with reference to annual and average annual precipitation and conditions of that kind. I wish you would explain whether or no- annual precipitation is a proper criterion in determining flood conditions?

A. It is not.

Q. Will you state why?

A. If you distribute the annual precipitation of the very wettest years that we have any record of over nine months you have no flood stage either in the Mustinka or the Bois de Sioux, you would have low water stage all the time. So that, when you take the annual precipitation and try to make your calculations from the annual precipitation you get no definite idea of the floods that might be caused. You must take a wet period and particularly if you are considering the floods that will destroy crops, you then should consider precipitation that takes place in the crop growing seasons and

the condition of the ground at the beginning of the crop growing months, say the months of May, June, July and August.

Q. Well, might it be true or might it not be true that
674 you might have a very heavy precipitation in a period of two months and a low precipitation for the entire year?

A. Yes, sir; you might have a precipitation of one-half the annual rainfall in one month, which has occurred.

Q. And would that have any effect on flood conditions?

A. Yes, sir, that would undoubtedly cause a flood and of course, again, if the ground when that happened was very dry, very much parched and that great rainfall happened in 5 or 6 days, that would change things a little, but if you had 2 or 3 wet months such as we have had in years gone by with a high precipitation, those are the months and that is the way to figure and determine what the flood conditions would be and what their effects would be on growing crops.

Q. Now, Mr. Ralph, in using this term "flood condition," is there any technical significance to that, or do you mean by that something beyond the average?

A. When I say flood waters I mean the waters that overflow the banks of streams and the borders of lakes, I mean the overflow waters.

Q. Is that a common condition, I mean?

A. It is a common condition in wet seasons.

Q. Were there any conditions in either of the years 1915 or 1916 that were materially or essentially different as compared to flood conditions in this valley from what had existed in previous years?

A. No, sir, I will just state the conditions that have existed in previous years and compare those years with 1915 and 1916. In the months of May, June and July, 1916, the total precipi-
675 tation at Morris was 12.3 inches, at Wheaton in the midddle —nearly the center of the watershed of the Mustinka, it was 11.5 inches practically, in the same time, so that in the months of May, June and July, the crop growing months, the precipitation at Wheaton was 11½ inches.

Q. What year?

A. 1916. In 1915, for the months of May, June and July, the precipitation was 18.6 inches at Morris, it was about 12½ inches at Wheaton. Now, in 1914, the months of May, June, and July at Morris there was a precipitation of 18 inches, in the month of June alone there was a precipitation of 12.53 inches.

Q. That is in 1914?

A. Yes, sir, and in 1913, in the months of May, June and July, there was precipitation at Morris of 11.8 inches, or fully as much or more than there was in 1916 at Wheaton. In 1912 there was a precipitation at Morris in the months of May, June and July of 15 inches. In 1908 at Morris in the months of May, June and July there was a precipitation of 17.8 inches against 11½ at Wheaton in 1916, in the same months. In 1906 there was a precipitation at Morris of 16.85 inches again 11½ at Wheaton in 1916 for the growing months, and in 1905, in the months of May, June and July,

there was a precipitation at Morris of 13.34 inches. In 1902 there was a precipitation of 12.6 inches, and in 1896, in the months of April, May, June and July, there was 18.72 inches.

Q. Now, there has been considerable questioning here in regard to the slope of the water at various points and amongst others on Lake Traverse and the Bois de Sioux river. What is the slope, taking the surface of the water at a stage of high water, from the outlet in Lake Traverse to down to what we call the high bridge near Fairmount?

A. At high water it was about 9 feet in that distance 977 and 968 at the high bridge.

676 Q. Then, what would the fall approximately be between Lake Traverse and White Rock in these flood conditions?

A. It was 3 feet.

Q. When the waters of Lake Traverse reached this flood stage that you have described they were running over, as I understand it, the edge of the saucer?

A. Yes, sir.

Q. And that condition was practically unobstructed through the Bois de Sioux valley?

A. Yes, sir, only the waters did not flow all the way across the Bois de Sioux valley; there was large areas where there was no apparent current.

Q. I was going to ask you about that. The current in those overflowed areas would be what, sluggish or swift?

A. It was very sluggish.

Q. As a matter of fact, it would be practically imperceptible?

A. In places it was imperceptible; in the village of White Rock and to the west of White Rock you could observe no current, it appeared to be still water.

Q. And what there was of current, you would have to get from the center of the main channel?

A. Yes, sir.

Q. The distance from Lake Traverse to White Rock is how much?

A. About 4 miles, the rim of the lake where it generally overflows a wide area would be nearly 4 miles.

Q. And from the rim of the lake to the high bridge which you told about in defining the slope was about how much, near Fairmount?

A. North of Fairmount?

Q. North of Fairmount.

A. 15 miles, it is 11 miles from White Rock.

677 Recross-examination.

By Mr. Palmer:

(Defendant's Exhibit 6 is marked.)

Q. I call your attention, Mr. Ralph, to Defendant's Exhibit 6. That is a general map of the drainage area, which shows the entire

drainage area into Lake Traverse or purports to, and which you will observe leaves off this car-shaped portion of the moraine zone that we talked of this morning, and adds some more to the drainage area at the southeast corner, and then indicates the limits of the drainage area in Dakota. Is there any part of that exhibit that is incorrect according to your recollection of it?

A. I haven't looked it over carefully; I would have to spend quite a little time to compare it, I couldn't answer that right now. I didn't make it.

Q. I think you stated that your location of the western boundary of the drainage area was approximate only?

A. In Dakota?

Q. Yes.

A. I didn't have the best kind of data to determine the location of that line, but I had the same data, I presume, that Mr. Bass had.

Q. I understand that Mr. Bass had a survey made upon the ground or levels taken and made upon the ground.

A. I don't think that he pretends to have made a survey in South Dakota or North Dakota.

Q. I take it if actual survey was made to determine the western limits there, that it could be more accurate than your map showing those limits?

A. The map don't show any contours in North Dakota. I don't know how he could determine the border of the watershed without running levels.

Q. You didn't make any contours either?

678 A. No, sir; I say I believe I determined them the same way and had the same data he had.

Q. You think then that is incorrect?

Mr. Boutelle: That is objected to as an improper question.

A. I haven't compared the map sufficiently to know.

Mr. Palmer:

Q. Assuming that it is correct; would you take into consideration in figuring the run-off into Traverse Lake any of the stations in North Dakota and South Dakota?

A. Yes, sir, and I want to state that I did take them into consideration, and I know that the run-off from North Dakota and South Dakota in the spring of 1916 was comparatively small.

Q. For what reason?

A. For the reason that there are no—for a distance of 20 miles reaching from Diamond on the shore of Lake Traverse in South Dakota to Fairmount—there are but three small openings through the highway, and that all water coming from the west would have to pass through those openings or over the highway. That I traveled along that highway in the spring time and early summer of 1916 and at no time had I observed water overflowed onto the road nor did I observe any place where the water apparently had overflowed the road, and the water had apparently all passed through

the three small openings which would take care of a very small amount of water.

Q. Would the water run from the watershed in North and South Dakota more or less rapidly than from the watershed in Minnesota?

A. With the same amount of precipitation it would run more rapidly from the watershed in North and South Dakota immediately adjacent to the Lake Traverse and Bois de Sioux basins, more rapidly than it would from the area on the east side in what is known as the delta zone, or prairie zone and delta zone,
679 but it would run fully as rapidly in the moraine zone.

Q. Why would there be a more rapid run-off from the Dakota area watershed?

A. The surface slopes are much steeper.

Q. They are more like the surface slopes of the moraine zone?

A. Yes, sir.

Mr. Boutelle: To save more examination on that, will you locate that road on the map that he is talking about?

Mr. Palmer:

Q. In Dakota we have what is called the Cottonwood lake and Cottonwood slough, which appears to be a large swampy area; where is the outlet of that?

A. Cottonwood lake has two outlets, one from the north end that goes westerly, emptying into Lake Traverse at a point about 3 miles south of White Rock. There is another outlet from the south end that flows southerly, emptying into Lake Traverse about 3 miles from its southern extremity.

Q. What is that called?

A. I have called them the southern Cottonwood and the northern Cottonwood, they are small streams. The culvert that crosses through the highway on the northern outlet, which is about the same as the southern outlet, is only 4 feet in diameter and all the water that comes down that stream passed through that culvert.

Q. It might run over that culvert at times?

A. As I stated, I saw no indications of an overflow. Now, the road that I referred to which runs north from Diamond, is a road that follows north along the section line to a point about opposite Rosholt, thence east two miles, thence north and east again, following the section line from a point opposite White Rock and two miles west, north to Fairmount.

Q. Where did the water come in again?

680 A. The water comes through the highway at a point nearly west of Blackmer. There is a bridge in the highway west about half a mile south of Blackmer that is 12 feet wide and about 2½ feet between the bottom of the channel and the bottom of the stringers. There is another bridge about 3 miles north of the first bridge, a little smaller, and those two small bridges take care of the or discharge the waters from the watershed to the west in North Dakota, and I have never noticed an overflow or an indication of an overflow.

Q. And this southern outlet which you described, you call it the Southern Cottonwood, what did you observe there?

A. That creek, I said, is about the same as the northern outlet and would carry, I should judge, about the same amount of water.

Q. Now, this northerly outlet that you have described.

A. That is the northern Cottonwood and as I said, the waters from the outlet all flow through a culvert 4 feet in diameter.

Q. I notice at the point at which this northern outlet of the Cottonwood slough enters the lake there is a large delta appears to be built up there dividing the lake into two parts, I think one is called Upper Mud lake and the other Lower Mud Lake, isn't it?

A. No, I think the part that is called Mud Lake here is really known on all the government maps as a part of Lake Traverse or as Lake Traverse. The lower part may be known as Mud Lake, I mean the part furthest north.

Q. That is practically all Lake Traverse clear up to the White Rock road?

A. No, sir, the lake surface is level to a point about 3½ or 4 miles south of White Rock, in flood times there is quite a fall, in fact, a fall of 3 feet to White Rock. I wouldn't call it a lake surface
681 where it has a slope of 3 feet.

Q. About to where the outlet leaves the lake?

A. Yes, sir.

Q. That is all Lake Traverse up to that?

A. All Lake Traverse south of that point, yes, sir.

Q. What caused the formation of this delta in between the two parts of the lake at the point where this northern Cottonwood slough comes in?

A. As I stated before, Lake Traverse is a shallow, marshy lake, and that that is similar to the shore of the lake in much of the distance to this northern end.

Q. Was it not the action of this stream coming in there that built up a delta in there?

A. I don't think so; I don't think there is enough water coming through that stream.

Q. Did you examine the formation of the soil to see whether it was a delta?

A. No, sir.

Q. Brought in from the land?

A. No, sir.

Q. What built up this delta which divides the part of Lake Traverse in Mud Lake from the part southerly from that, what we might call the main lake; was that the action of the Mustinka coming in there?

A. No, sir, I don't think so.

Q. Did you examine that to ascertain its formation geologically?

A. I have examined it, yes, sir; it seems to be a vegetable formation. A large part of the soil there is decayed vegetable matter and I should judge that the accumulation of grasses and mosses and the drift of the ice crowding it up into that point has caused that.

Q. You don't think that the Mustinka would have any-
682 thing to do with that, the influx of the Mustinka?

A. No, sir; if it was the Mustinka you would find silt such as washed from the upland.

Q. You didn't find any of that?

A. No, sir.

Q. You examined the soil to see?

A. Not very carefully, but I passed over it and I noticed it was a peaty soil.

Q. What stations did you take into consideration in South Dakota in figuring the precipitations?

A. I took into consideration the station of Beardsley——

Q. Beardsley is in Minnesota.

A. It is on the shore of Big Stone Lake south of Lake Traverse, and Morris and Wheaton and Breckenridge and Wahpeton and Campbell, I think that is all.

Q. Well, didn't you take in Roslyn and Kidder in South Dakota?

A. No, sir, I didn't consider the South Dakota records of very much importance for the reason that the indications on the surface was that the run-off from the watershed into Lake Traverse in South Dakota is comparatively light as compared with the other side of the river.

Q. And of course, you were working on the west side of the——

A. No, not at all; as I stated before, the highway running north and south through which the waters came——

Q. You don't need to repeat all that stuff again.

A. The fact that I was working for North Dakota then or for South Dakota had absolutely no influence at all on my opinion, not the slightest.

Q. Then you know nothing of the actual rainfall on the Dakota side at the times material?

A. Except from personal observations.

683 Q. Where did you say Beardsley is?

A. Beardsley is, I think, on the shore—near the shore of Big Stone lake, not far from Browns Valley.

(Defendant's Exhibit 7 is marked.)

Q. I show you Defendant's Exhibit 7 and will ask you if that is an approximately correct representation of the various county and judicial ditches?

A. I don't know, I haven't examined it sufficiently to be able to tell.

Q. In your answer to the hypothetical question as to the recurrence of these conditions, you took into consideration all of these various ditches in this watershed, do you not, Mr. Ralph?

A. I take into consideration the fact that those various ditches have an outlet through the Mustinka state ditch and that the amount of water that flows down the Mustinka state ditch under present conditions is at least double as much as it was in a state of nature.

Q. That is partly due to these other ditches?

A. Partly, those ditches help to accumulate the water and to collect it into the Mustinka state ditch.

Q. Do you think without the construction of the Mustinka state ditch that those ditches would have an adequate outlet?

A. No, sir.

Q. So that, if the river could be restored to its natural state, it would destroy the outlet of those ditches?

A. Yes, sir.

Q. You have given your opinion as to the recurrence of these flood conditions, why did they not recur in the month of April, 1917?

A. Why did they not occur? There wasn't sufficient water that run off from the watershed was the reason.

Q. Or in any part of 1917, May or June, that would be
684 the same reason?

A. Yes, sir.

Q. You stated that everybody knew your position and your views on the construction of this ditch?

A. Yes, sir.

Q. Did you state to the committee that the ditch ought to run down the Rabbit river, the legislative committee?

A. I stated before that the only thing I can recall stating to the committee, and I am not very clear on that, was that I was asked to estimate the cost of a cut-off ditch across the big bend and that I had a talk with Mr. Spooner, the chairman of the committee, I think he was, and I stated to him very clearly my views.

Q. That the ditch should run down the Rabbit river?

A. Yes, sir, and that—taking the water down the Mustinka would increase the flood stage in Lake Traverse and the Bois de Sioux and it would result in overflowing the lands along the Bois De Sioux and I wasn't in favor of it.

Q. Did you state to Mr. Small, the Secretary of State, and the other members of the State Drainage Commission, that you were opposed to this ditch construction and that the ditch should run down the Rabbit river?

A. I am quite sure I did.

Q. You say that there was a very heavy rainfall in the month of June, 1914?

A. Yes, sir.

Q. Was there any flooding of these lands in the Bois de Sioux valley in June?

A. I don't know anything about —, I wasn't out there in June.

(Adjournment until 10 o'clock a. m., Sept. 22, 1917.)

685 September 22nd, 1917.

Hearing resumed pursuant to adjournment with all parties present.

FRANCIS C. SHENEHON, having been called as a witness on behalf of complainant, was duly sworn and testified as follows:

Direct examination.

By Mr. Boutelle:

Q. Dean Shenenhon, by profession, you are what?
A. A civil engineer, specializing in hydraulics.
Q. And a graduate of what institution or institutions?
A. I am a graduate of the college of Engineering of the University of Minnesota, holding an original degree of Bachelor of Science and Engineering, and finally the degree of Civil Engineer.
Q. And what was the date of your graduation?
A. 1895, B. C. E.; 1900, Civil Engineer.
Q. And following you graduation has your engineering work specialized along any certain branches?
A. My large experience has been along hydraulic lines.
Q. Has that included the feature of hydraulics that enters into flood control?
A. Yes, sir, I have given some consideration to that.
Q. Will you state as briefly and succinctly as you can some of the works in which you have been engaged or employed?
A. My earliest work was in railroad location and construction on the line between Minneapolis and Sault Ste. Marie. As an incident of that I made an examination and report on a water power on the Pine River in the upper peninsula of Michigan to the railroad. I was about two years on the railroad work. Following that I established an office in Sault Ste. Marie for general engineering practice in partnership with a man who had been my chief
686 on the railroad. In this work we designed and built sewers; I made a report on water supply; I made a report on the water powers in Ste. Maries River for Mr. Wm. Chandler.
Q. Was that the same Chandler that appeared later in the Supreme Court in the case of Chandler vs. Dunbar?
A. No, it was a case against the Chandler-Dunbar Company. It was the same company. I also designed water supply systems and sewers for the Fort at Sault Ste. Marie—Fort Brady. While still engaged on the work at the Fort there I was made engineer for the building of the great ship-lock, the 800 foot lock, as it has been called, at Ste. Marie under the Federal government. I began that work in 1891, I believe, and was employed in the Federal service at Sault Ste. Marie until 1898. During this period I had to do with the design and construction of the ship lock at Sault Ste. Marie; I made hydraulic investigations on the emptying and filling of ship locks; I also made an examination on the flow of water in

the canal of the Lake Superior Company, a private corporation. Part of my time was spent in the channelization of the Ste. Marie's River, that is dredge work and drilling, or the supervision of these for the making and maintenance of channels to accommodate the commerce of the Great Lakes.

Q. Was that government work?

A. That was federal work, yes. I also measured the discharge of the Ste. Marie's river which is the outlet of Lake Superior. This was done in great detail and very elaborately. The computations and investigations as to the results covered many weeks. I was transferred from Sault Ste. Marie after the completion of the locks there and the power house—and incidentally I had to do with the construction of the power house and installation of turbines, pump and machinery—I was transferred to Buffalo to take charge of the hydraulic work on the Niagara river.

687 Q. When you say you were transferred what do you mean by that—by whom were you transferred or for whom?

A. At that time there was a survey being made——

Q. Was this government work still?

A. Yes. I was going to explain that. At this time a survey was under way to project ship channels between the Great Lakes and tide water and the Commission or Board of Engineers on Deep Water Improvements were making very elaborate examinations of the hydraulics of the various rivers, and I was placed in charge of their office at Buffalo, and the work was in collaboration with the United States Lake Survey.

Q. During how long a time did that continue?

A. That continued for about two months and then the Lake Survey took up the work and I was engaged in hydraulic work on the Niagara River for the following two years, that is from 1898 to 1900.

Q. What was the character of the investigation of the Niagara River, briefly?

A. We made very extensive measurements of the volume of flow, and at various stages of Lake Erie and established the law of discharge relating to the height of the lake to the volume of flow that went out through the river; and we also made examinations of the slope of the river and the law which governs a stream of that kind with varying volumes of flow at various elevations of river surface at various points.

Q. Following that were you engaged in any other government work?

A. I took up the hydraulics of the St. Lawrence River; that was in the fall of 1900; and I remained there until the fall of 1909 measuring the volume of out-flow of the St. Lawrence River in great detail and at many elevations of the water surface of the River and Lake Ontario of which it is the outlet.

688 Q. What was the objective purpose of this investigation?

A. It was a study of the reservoir system of the Great Lakes with a view of regulating it and maintaining deeper channels, more particularly in Lake Erie, Lake St. Clair, Michigan and Huron.

Q. Was this still government work?

A. Yes, sir, and during that same period I was in charge of the surveys of the St. Lawrence River for the purpose of construction of navigators' charts. This involved soundings and sweepings and various ways in which engineers develope the contour of the bottom and the channel of it. I might say in regard to that hydraulic work in the St. Lawrence river that the theory of a river or conception of a river was a source of wears and was very minutely and extensively gone into.

Q. Following that were you engaged in any further work along that line on behalf of the government?

A. Perhaps the hydrography work of 1903 and 1904 may be spoken of as relating to hydraulic work. That means the examination of Lake Erie in its shallow areas, its harbors, by sounding and sweeping for the construction of navigators' charts. In 1906, I believe it was. I was engaged in an extension examination of the hydraulics of the Niagara river again under what is known as the Burton Act. This was Federal work which provided for the preservation of the cataracts at Niagara and the examination there had to do with the effect that the diversion of water for power purposes was having on the navigable depth of the Niagara river and on Lake Erie also possible, and on the river as a boundary line, which I believe is more a legal distinction than anything very definite in that particular case, and upon the scenic grandeur of the cataracts themselves.

Q. What was the next matter that was entered into for the government?

A. In 1906 I was made Chief Civilian Engineer of the United States Lake Survey with general jurisdiction over the hy-
689 draulics and hydrographic activities covering all the Great Lakes, and during this period I was in supervisory charge of further investigations at Niagara and measurements of the St. Clair river.

Q. Had any other government service subsequent to that?

A. I remained Chief Civilian Engineer of the United States Lake Survey until 1909 when I resigned to become Dean of the College of Engineering of Minnesota.

Q. And since that time what lines have your investigations or work covered in the main?

A. During my period as Dean of the University I also was privileged to and did take considerable work as Consulting Engineer.

Q. That is for the government?

A. I was hydraulic expert for the Federal Government in the condemnation of the water power in St. Marie's river at Sault Ste. Marie. This was the Chandler-Dunbar case you have spoken of. This involved the hydraulics of the St. Marie's river—about 70,000 horsepower.

Q. And any work subsequent to that in which the government was co[illegible]?

A. [illegible] hydraulic expert for the Federal Government in the very extensive litigation concerning the Chicago drainage canal, and this involved the hydraulics of all the Great Lakes and their con-

necting and outflow rivers from the foot of the Lakes in St. Marie's river to Cornwall where the St. Lawrence turns into Canadian territory.

Q. Now, during this experience, you have related, have your investigations required you to make a more or less complete study of what we might term flood control?

A. To some extent. I haven't entirely complete- the hydraulic things of some magnitude with which I had to do.

Q. Well, go on?

690 A. For three years I was Consulting Engineer for the Hydraulic Power Company at Niagara Falls on matters of water diversions and the prevention of the lowering of the Niagara river by reason of diversions and controlling works. Last year I spent about six months in hydraulic investigation of the Illinois river as hydraulic expert for the Marseilles Land and Water Power Company. At the present time I am engaged in flood control work at Sioux Falls.

Q. Are you a member of any of the well known engineering societies?

A. I am a member of the American Society of Civil Engineers, and a member of the local societies of Minneapolis and the state also.

Q. You are familiar in a general way, are you not, with the area in question in this particular case?

A. I spent about ten days on the ground and probably drove over five hundred linear miles and made a very complete examination of the country.

Q. Did that investigation include the general situation of Lake Traverse and its outlet into the Bois de Sioux river, as has been testified to here, and the relation of the watersheds on either side, both in the Dakotas and Minnesota with reference to these physical conditions?

A. Yes.

Q. When was that investigation made?

A. I was on the ground from May 28th to May 30th, inclusive, 1917, again from June 21st to 25th inclusive, again on July 1st, and the fourth time from July 5th to 7th, inclusive, all in 1917.

Q. And you have also been on the ground quite recently?

A. On September 16th I went to Wheaton and made certain examinations.

Q. You heard the direct testimony of Engineer Ralph in regard to the general physical conditions that prevail there?

691 A. In part. I did not hear it all.

Q. You have made, I believe, certain tabulated charts or data with reference to the rainfall computed from the United States Geological Survey reports of this area covering a series of years?

A. From the Weather Bureau reports.

Q. I show you papers marked Complainant's Exhibits 14 and 15 and ask you what those are?

A. Those are tabulations of the precipitation at various stations in or near the region involved in this territory.

Q. Extending over what years?

A. Extending from the years 1915 to July, 1917, inclusive.

Q. I also show you paper marked Complainant's Exhibit 16. What is that?

A. It is a small map of the region involved and surrounding the region involved in this case with the meteorological stations.

Q. This is a map prepared with reference to the data and showing the stations disclosed on Exhibits 14 and 15?

A. Yes, it shows the geographical location of the rainfall stations.

Mr. Boutelle: Complainant's Exhibits 14, 15 and 16 are offered in evidence.

Mr. Palmer: Objected to for the reason that they do not show the stations tributary to the material area in the states of North and South Dakota, and that they take into account the station at Moorhead which is too remote geographically, and on account of the topographical and meteorological conditions between this area and Moorhead that station cannot be material; and as too incomplete to be of any value in this case.

Mr. Boutelle: I understand that there is no question made as to the accuracy of these computations from the official data of the Weather Bureau?

692 Mr. Palmer: So far as they go.

Mr. Boutelle: That is what I mean. Of course that would be implied.

Q. These Weather Bureau charts that you have prepared were prepared by yourself or under your supervision?

A. Under my supervision.

Q. And from the official reports covering those stations which are there disclosed of the Weather Bureau of the United States?

A. Yes.

Q. And they are to the best of your knowledge correct?

A. Yes.

Q. Now will you state briefly why the particular sections or localities disclosed on these charts were selected by you in making up that meteorological data as applied to this case?

A. Moorhead is included because it is one of the regular Weather Bureau stations with trend observers and is a control for storms extending over wide areas. It is somewhat remote from the watershed area involved in this case, but is helpful, I believe, in drawing conclusions as to widespread storms. Wahpeton, where rainfall records have been maintained part of the time and Breckenridge here are not very far distant from the mouth of the Rabbit river—about eleven miles, I believe. Fergus Falls is to the eastward of Breckenridge but comes fairly close to the Moraine Zone watershed involved in this case. Campbell is on the Rabbit river and within the range of the territory involved in this case. Wheaton is the closest station we have to Lake Traverse. The Mustinka river runs tangent to the City of Wheaton. Beardsley is near the southeastern extremity of

Lake Traverse and Morris is to the eastward and close to the territory involved in this case.

Q. Having regard to the conditions as you have observed them on the ground and the meteorological factors that would enter into a case of flood waters such as this, is it your opinion that
693 the stations to which you have referred and from which you have collected the data on these charts are sufficient for the purpose of reaching a conclusion with reference to those conditions?

Mr. Palmer: Objected to as no foundation laid, the witness not shown himself competent to give an opinion on that subject, and as not being the subject of expert testimony, and the exhibits show upon their face that they are incomplete.

A. The watershed of Lake Traverse and the Bois de Sioux river does enter North Dakota and South Dakota to the westward to a certain small extent, but it did not seem to me very essential to include those stations to the west. In fact I did not have the data.

Q. Then what is your answer to the question?

A. My answer to the question is that the stations indicated here give such substantial falls of precipitation as are necessary in my judgment in this case.

Q. From your own personal investigations on the ground have you become sufficiently familiar with those conditions to express an opinion on the general hydrographic flood conditions obtaining in the area with which we are dealing?

A. Yes, sir.

Q. Will you state briefly in what your personal investigation consisted?

A. I first entered the territory in the Moraine Zone. I drove from Minneapolis, passing through Elbow Lake and Westwood, intercepted the Mustinka river in the Moraine Zone, followed the river down looking over that valley as far as Norcross. From there I went to Charlesville and from there to Campbell, and from thence to the High-Bridge below Fairmount. I visited Fairmount, Wahpeton and Breckenridge, viewed the Bois de Sioux river at various points between Wahpeton and the High Bridge, inspected the Bois
694 de Sioux river from the High Bridge up to White Rock on both sides of the river; drove from White Rock along the Dakota side of Lake Traverse to Brown's Valley and from Brown's Valley along the Minnesota side to Wheaton. I have driven across from Herman to Wheaton in that region and looked over Five Mile Creek north of the Herman road; also Twelve Mile Creek. I visited what is known as the deltz zone in this case where the two mile cut-off comes in, where the old Mustinka river made its six mile lo-pp; also the region of the Tintah slough. I walked on September 16th from Wheaton up the Mustinka river along its new channel to the new cut-off.

Q. Having regard to the conditions as you observed them and as you have testified, the drainage of what we have termed in this record as the Mustinka watershed is where?

A. Substantially as indicated on the map put in evidence by Mr. Ralph.

Q. That is, into Lake Traverse and the Bois de Sioux river?

A. The drainage is into Lake Traverse and thence into the Bois de Sioux river except that certain portions enter the Bois de Sioux river direct.

Q. What is the general character of Lake Traverse?

A. Lake Traverse is a shallow, long, narrow lake, having its outlet about three miles above White Rock in a small inadequate channel. It has two branches or lakes which connect with it which are to the westward of the channel or the main lake itself at its north end.

Q. And this small, irregular channel, as you have defined it which is the outlet of Lake Traverse is what?

A. That is the Bois de Sioux river.

Mr. Palmer: Did you say irregular or inadequate?

A. I used the term inadequate. Counsel said irregular.

695 Q. What is the character, as you observed it, of this outlet, that is the Bois de Sioux river, near its source in Lake Traverse., that is the character of the channel?

A. I don't think I have been—I am quite sure I have not been at the source. I went up to about two miles above White Rock.

Q. Well, through that general region?

A. Through the general region it is a narrow, shallow channel, saucer shaped, or like a section of a saucer, some boulders exposed, and rushes and aquatic grasses and weeds, with very little flow at the time I examined it; I believe, in June, 1917, that was.

Q. As to the character of the channel for depth.

A. It has very little depth under the conditions of flow at the time I examined it. At that time there were about 60 or 70 cubic feet per second flowing in the channel.

Q. And as to its banks?

A. They were low—especially on the Dakota side. On the Minnesota side the banks are fairly close to the channel, higher banks.

Q. Speaking generally, the character of the land on the Minnesota and Dakota sides bordering on the Bois de Sioux is what? I don't mean as to agriculture. I mean more particularly as to its topography.

A. It has a low line. The channel is narrow and shallow and interrupted with weeds and rushes. The ground rises more rapidly on the Minnesota side and if fairly flat on the North Dakota side.

Q. What is the direction of the flow of the waters from Lake Traverse, in a general northerly direction?

A. Yes, sir.

Q. And the general slope of the area between Lake Traverse and—well, we will say the Rabbit River—what I mean is—is it to the north or south, the slope of the land?

A. To the north.

696 Q. And did you make any computations or estimates as to the extent of that slope to the north?

A. The water surface slope from Lake Traverse to White Rock

appears to be about three feet, and from White Rock to the High Bridge the low water slope is about nine inches to the mile, and below the High Bridge a mile and a half down the slope is about a foot and three-tenths, as I judge it to the mile.

Q. It is customary with experts and engineers in speaking of falls of so many feet to the mile. Can't you visualize it so we can see it a little plainer. The slope between Lake Traverse and White Rock is about a foot to the mile. Suppose we wanted to visualize that. What would it be in a hundred feet, for instance?

A. About an inch and one-eighth. No, I am — error, that was for five feet to the mile, an inch and one-eighth to a hundred feet.

Q. Now you have referred to the Moraine Zone, as it is termed in this case. What was the general character of that zone?

A. It appears to be rolling land with some considerable elevation above the Delta Zone. The river is flowing in a well marked fall.

Q. And by the river, you mean what?

A. The Mustinka river.

Q. And in what portion of the Moraine zone does that river have its source?

A. In the northern portion, flowing south for some miles, then west and swinging back to the north again.

Q. And at the point in which the river in its natural state made that turn and flowed to the west it passed through what character of an area?

A. Flood plain.

Q. What do you mean by a flood plain?

697 A. I mean a plain of very low slope where the river shows its indecision by many swings and windings, where in a time of plentiful supply of water and plentiful precipitation it is likely to leave its banks. A slope in such a case is likely to be so little that the power of the water won't give or cut itself an adequate channel.

Q. Were the conditions at the time of your investigation such that you could observe in part at least the character of the old Mustinka channel through what you term this flood plain?

A. I examined the river to the north of Norcross where it is in its natural channel, and I also examined the old state ditch and some of the channels which the river previously occupied. I have in mind one channel to the north of the old state ditch.

Q. Were these examinations in connection with the character of the land in this so-called flood plain sufficient to enable you to determine the character of the Mustinka channel in that area in its natural state, the general character, I mean?

A. Yes, I think so.

Q. State what it was?

A. It was a shallow bed of perhaps four or five feet deep and no determinate bottom width, rounding, gradually working off—oh, it may have had a surface width of eighty feet at that particular point I have in mind that I am trying to visualize.

Q. And as to the character of its banks?

A. Well, they were grass grown at the time I viewed it. I am

speaking now of the channel which has been superseded by the old state ditch.

Q. That is the one I am addressing my question to. Was there any particular heighth to the banks?

A. The stream traveled in a depression, perhaps four or five feet, as I have stated.

Q. What was the character of the contour of the land in this general area which you have described as the flood plain?

698 A. It is very flat.

Q. And what will you say as to an area of that character as accommodating the flood or otherwise of accumulated waters?

A. The channels are inadequate.

Q. What is the result of that?

A. Wide overflows.

Q. Were there indications when you made your examination of the ground that would enable you to determine that such conditions of overflow had existed in a state of nature there?

A. It would be my judgment they were on a plain of that kind.

Q. What would be the natural and necessary effect on the flow and discharge of these accumulated waters of an area of that character?

A. They would accumulate over some area at the confluence of the various streams, the Mustinka itself, Five Mile Creek and Twelve Mile Creek.

Q. And as to the effect of flow and discharge of those waters into the discharge basin?

A. At the confluence in a state of nature, as I see it, a detaining basin was created by the inadequacy of the Mustinka channel so that the waters that were due to enter Lake Traverse or were tributary to Lake Traverse were detained there and in part were lost by evaporation, and possibly by seepage and other causes.

Q. So that having regard to the physical conditions as you have described them is it or is it not your opinion that a very considerable portion of the accumulated waters in that area that you have defined as a flood plain would be lost?

Mr. Palmer: Objected to as the witness has not shown himself competent to testify, and that he knows nothing of the conditions existing there in a state of nature.

699 A. The physical conditions indicated by the map prepared by Mr. Ralph and my observations of the conditions on the ground indicate to me that the overflow of these lands, the concentration of the waters there in a state of nature was an inevitable thing; that that did occur.

Q. That does not answer the question.

(Question repeated.)

A. Yes, some portion of the waters—perhaps not very large percentage of them—would be lost.

Q. Is or is not that the general effect of all such detaining basins as you have described?

A. Yes, that would be the tendency.

Q. What would be the effect of such a detaining basin as to the rapidity of flow into the basin, and by the basin. I mean Lake Traverse, having regard to the natural conditions?

A. This basin, having an inadequate outlet, would of course retard or detain the waters there and they would be somewhat slower in reaching Lake Traverse.

Q. Now the outlet of this so-termed detaining basin was what, in a state of nature?

A. The main Mustinka channel at the point where the loop of the old channel and the new cut-off meet on the down stream end. There are two points where the cut-off channel——

Q. I am speaking exclusively with reference to conditions of nature?

A. In a condition of nature the Mustinka river alone after the Twelve Mile Creek and Five Mile creek have entered it was the outlet.

Q. You also observed on the ground artificial construction, that is these state ditches that are involved in this case?

A. Yes, sir.

700 Q. It has been testified here that the first of those ditches was constructed from a point near the crossing of the Great Northern for some six miles east and that in this record has been referred to as the original ditch. Later, and following an act of the legislature of this state in 1911, that was extended from a point near the confluence of Twelve Mile Creek and the main Mustinka channel in a direct or practically direct east and west line until it intercepted the Mustinka channel on the west, cutting off the big bow which existed in a state of nature to the north and thence in a general southwesterly direction into Lake Traverse. *Q.* You observed those things?

A. Yes.

Q. You observed the character of that ditch construction?

A. Yes.

Q. The size of the ditches?

A. In a general way.

Q. Sufficient to give you a general idea of their capacity?

A. Yes, sir.

Q. And as to the capacity of those ditches as compared with the original channel of the Mustinka?

A. Yes, sir.

Mr. Palmer: I would like to ask for the sake of the record and understanding of the witness' testimony how many ditches he is speaking of here.

Mr. Boutelle: The two ditches I have asked him about—the original and main Mustinka.

Mr. Palmer: The two parts of the ditch?

Mr. Boutelle: Yes, sir.

Q. I call your attention to a photograph marked complainant's Exhibit 17 and will ask you if that photograph was taken by
701 yourself?

A. This photograph was taken by me on September 16, 1917.

Q. What does it show?

A. It shows the channel of the new cut-off looking up stream from a point about five hundred feet below the bridge which leads to the Lutheran church in that vicinity. I believe that is about at Sections 23 and 24. It is pretty well toward the foot of the cut-off.

Q. And by the cut-off you mean that portion of the ditch that cut off the loop of the Mustinka river to the north?

A. Yes sir.

Q. I call your attention to the photograph marked Complainant's Exhibit 18, and ask you if that photograph was taken by you and if so, when?

A. This photograph was taken by me in July—July 6th, I believe, 1917. It represents the old state ditch at its intersection with sections 17 and 18, 19 and 20, as I have it marked.

Q. By the old state ditch you mean?

A. The ditch constructed in the middle '90's.

Q. Calling your attention to Complainant's Exhibit 19?

A. That is a photograph of Five Mile Creek south of the Herman road, taken on the 5th of July, 1917, by me. It is Five Mile Creek within a quarter of a mile of its intersection with the Herman road, and by the Herman road I mean the road between Wheaton and Herman.

Q. Quarter of a mile which was?

A. South, on the upstream side of the road.

Q. Calling your attention to the photograph marked Com-
702 plainant's Exhibit 20 I will ask if that photograph was taken by yourself, and if so, when?

A. This is a photograph of the Mustinka canal near Wheaton. It was taken by me in June, the latter part of June, 1917. The gentleman in the foreground is Prof. Chandler. The railroad bridge is shown upstream over from the highway bridge. It is the Milwaukee.

Q. Calling your attention to the photograph marked Complainant's Exhibit 21, I will ask you if that photograph was taken by yourself, and if so, when, and what it shows?

A. This is a photograph of the same high-way bridge which is southeast of Wheaton, I believe, crossing the Mustinka canal, taken from the Milwaukee railroad bridge, by myself, September 16, 1917.

Q. I show the witness a photograph marked Complainant's Exhibit 22 and ask if that photograph was taken by him? If so, when; and what it shows?

A. This photograph was taken by me on July 6, 1917. It is the Mustinka canal.

Q. We haven't used the word "canal"?

A. I mean river—rectified river, looking upstream from the new bridge, I have this marked.

Q. Is that the present ditch?

A. That is between Sections 33 and 34.

Q. Is that the present ditch?

A. Yes, that is the present ditch, the rectified and deepened river.

Mr. Boutelle: We offer in evidence Photographs Exhibits 17 and 22 inclusive.

Q. Dean, having regard to the physical condition there in a state of nature what will you say as to the action of Lake Traverse in handling what we will call the flood waters from the watershed?

703 Mr. Palmer: Objected to for the reason that the witness has not shown himself familiar with any of the conditions there in a state of nature.

A. Lake Traverse is the receiving reservoir for the waters brought down by the Mustinka river and acted as a secondary detaining or retarding basin in preventing floods in the Bois de Sioux river.

Q. Do you know the mean elevation of the waters of Lake Traverse?

A. Why, I know the elevations given by Mr. Ralph. I also have had some elevations taken during the past summer by Mr. Withey that you may wish to go into.

Q. Will you explain a little more fully what you mean by Lake Traverse acting as a detaining basin?

A. When water from the Mustinka river goes into Lake Traverse it is not immediately discharged down the Bois de Sioux river, but it must first lift the level of Lake Traverse to a point where the Bois de Sioux channel is adequate to take care of certain quantities of water. As Lake Traverse rises this is an increasing quantity of water, and in that way it is one of the natural detaining basins which engineers now a days have to create in order to take care of flood conditions on rivers where nature has not provided such a detaining or retarding basin.

Q. I will ask you as to whether or not it is or is not a recognized engineering principal at the present time in controlling floods to supply, where they had not existed naturally, these so-called artificial detaining basins?

A. Yes, that is the accepted practice in flood control.

Q. Is that a character of work that is being carried on at the present time in different sections of the country?

A. It has been projected and to some extent carried on.
704 We have a case in Minnesota. The reservoirs at the head of the Mississippi were build for that purpose. We have of course many natural reservoirs which prevent any large flood flows in streams very near to us here. Minnehaha Creek and Lake Minnetonka are instances; Mi Lac and Rum rivers another. The Great Lakes is one of the systems of detaining and retarding basins that I myself have spent many years upon.

Q. Then what will you state as to conditions in the area which we are dealing with in a state of nature in their bearing on this detaining basin feature to which you have referred?

A. In a state of nature we had the detaining or retarding basin which we have spoken of as the Delta zone basin or which is set down on the map which you put in this morning as an exhibit as the Deltz

detaining basin. The secondary detaining basin I have already mentioned, and the action of these two basins was to minimize floods in the Bois de Sioux river.

Q. That is in the valley with which we are dealing in this case?

A. The Bois de Sioux river from White Rock down to the mouth of the Rabbit River.

Q. What, so far as the engineering or hydrographic feature as you term it that you have just described, was the effect of the construction of the Mustinka state ditches?

A. The effect of the construction of these ditches in connection with the betterment of the Mustinka river was to destroy or lessen the value of the Delta detaining basin.

Q. And what would be the necessary result of that in its effect on the discharge of the waters of this watershed into Lake Traverse?

A. It would materially increase the volume of discharge and accelerate the time of discharge or lessen the time over which the discharge was taking place.

705 Q. What would you say as to the effect of this construction, if say, on Lake Traverse as a detaining basin?

A. The value of Lake Traverse as a detaining basin is impaired by the various ditching constructions in the area in controversy.

Mr. Palmer: I ask that the answer be stricken out as not responsive and as taking into account other ditch constructions than those involved here.

Q. Why is that so, Dean?

A. The construction of the ditches mentioned not only in extreme flood times or times of very plentiful supply send water down into Lake Traverse, but the tendency will be to lift the mean level of the Lake so that when a flood comes it has not its proper capacity as a detaining basin. I may illustrate this by what is the accepted practice in flood control, if I may. On the Miami, which is an Ohio river, and had to do with the very severe floods in the vicinity of Dayton, Ohio, in 1913, the project provides for a number of detaining basins; that is, they put a dam across a valley and make artificial lakes or reservoirs or retarding basins of many square miles of area. These might be very useful for water power purposes if they could only keep the reservoir full, but for flood purposes you have got to have your detaining basin as near empty as practicable so it will have the capacity to take care of flood waters. In the case of Lake Traverse this capacity in my judgment, has been impaired by the ditching operations referred to.

Q. The general character of the area in and around the confluence of Five and Twelve Mile Creeks with the Main Mustinka channel in a state of nature, was that such as to lend itself to these features of the detaining basin to which you have referred?

A. It had some considerable value as a detaining and retarding basin.

706 Q. And what effect did the construction of these ditches and the cutting through there of these ditches have on that?

A. It released the detained waters or gave it a more rapid release

and created flood conditions in Lake Traverse and the Bois de Sioux river.

Q. Now, Dean, we have used the term "flood conditions". Just what do we signify by that?

A. It means a higher level of the river than is ordinary, a higher level than comes every year or perhaps the level that comes with the spring break-up. There may be some little flood every year.

Q. And those conditions are produced by what?

A. Precipitation is the predominant cause, natural cause.

Q. Now having regard to your examination of the meteorological data, are you able to state an opinion as to whether or not there was anything in the years 1915 and 1916, as disclosed by that data that rendered those years any more likely to be productive of floods than numerous previous occasions or years?

Mr. Palmer: Objected to as the witness has not shown himself competent to testify, no foundation laid for it, not the subject of expert testimony.

A. Yes.

Q. What is your opinion?

Mr. Palmer: Same objection.

A. 1916 in part was a year of plentiful supply and is comparable with the years 1906 and 1908, and I believe some earlier years which, however, are not included in this compilation. I am answering this question with an examination of the annual precipitation in inches.

Q. Then what do you say as to your opinion of whether there was anything in 1915 or 1916, having regard to the data to which the question addresses itself, which rendered those years more
707 likely to produce flood conditions than previous occasions?

A. 1916, I believe, has a slightly higher precipitation than the years I mentioned. 1915 has not.

Q. You haven't answered my question?

A. There is nothing in my judgment in those years to account for the flood that did occur.

Q. It has been testified to in this case, in substance, that in the late fall of 1914, and by the late fall I mean a period after—as the witnesses described it—the fall plowing had been completed, the Bois de Sioux river increased its stage in the valley here with which we are dealing, inundating its banks to some extent; that in 1915 the Bois de Sioux commenced to raise along in May, and by June assumed what is described by the witnesses as flood conditions, continuing to raise until about the 20th of July at which time there was overflooded substantially the area indicated in yellow on complainant's Exhibit 1; that these flood waters in the year 1915 receded in the late fall to a point where approximately fifty per cent of the flooded area or thereabouts was uncovered, although left wet, and the remainder left inundated and froze up during that fall; that in 1916 in the spring a little earlier the Bois de Sioux again began to raise, and in the summer months reached a higher stage than in

the previous year of 1915, overflowing the area marked in yellow on Complainant's Exhibit 1 in the states of North Dakota and South Dakota, that area bordering on Lake Traverse and the Bois de Sioux river, and that these waters remained overflowing the land until comparatively late in the fall of that year. Assuming the facts as you have observed them and testified to yourself, and assuming the facts to have been as I have already described the testimony, are you able to express an opinion as to the cause of that overflow?

708 Mr. Palmer: Objected to as not a correct statement of the testimony given and not based upon the evidence now in the record and not based upon the allegations of the bill of complaint.

A. Yes.

Q. What, in your opinion, was the cause of that overflow?

A. The ditching operations of the state of Minnesota.

Q. That have been described in this case?

A. That have been described in this case.

Q. That is the Mustinka state ditch, as we have termed it?

A. The Mustinka State Ditch and the various constructions leading to it and from it. I must include the whole system, because the Mustinka river itself between Traverse and the basin itself must be included.

Q. In referring to the general conditions there, aside from the Mustinka state ditch, do you refer to conditions as you observed them on the ground and as shown on Prof. Bass' map which the defendant has kindly furnished us in this case?

A. Yes.

Mr. Palmer: We move that the answer be stricken out as not responsive and as immaterial, and for the reason the opinion is based upon ditching operations other than the Mustinka state ditch, and upon ditching operation that were not constructed or in operation at the time of the alleged injuries, and as incompetent, irrelevant and immaterial.

Q. Now in referring to the ditch construction in the area in question other than what is termed in this record as the Mustinka State Ditch, have you had access to and have you taken into consideration a map which the defendants have furnished us marked Map of Drainage Area of Lake Traverse showing Drainage Ditches,

709 Frederick Bass, Engineer?

A. I have given consideration to that map and to the dates which are set down showing the improvement or construction of the ditches. I don't know how correct those ditches are and suspect that in some cases ditches marked as new ditches are ditches that have been recently improved and were earlier constructed. I have that impression. My answer to the question is mainly based on my observations in the field.

Mr. Palmer: I will add to that last objection: not in conformity with the allegations of the complaint and not tending to prove any of them.

Q. Dean Shenehon, I don't want to get any unnecessary complication into this record. Are you able to express an opinion, in answer to the question I have asked you, based upon the hypothetical case that I have given you and your observations without regard to anything appearing on this map?

A. Yes.

Q. And what would your opinion be?

A. Just the same as I have stated where the reference to the map was made, that the ditching operations in the area involved is the cause of these floods of 1915 and 1916.

Q. Now will you state generally the reasons upon which that conclusion is based?

A. I believe the constructions mentioned have increased the run-off from the area involved in the water-shed above the two mile cut-off, have increased the run-off during the flood times about fifty per cent, and that the water has been precipitated more rapidly into Lake Traverse during the periods of flood conditions and moreover that in periods of lesser floods Lake Traverse itself has had impaired its capacity to receive this water.

Q. Did you include in your answer to the latter question the effect which you have already stated as to the construction of this
710 state ditch on the waters in the Delta zone?

A. Yes.

Q. And that had what effect so far as conducting or discharging those waters into Lake Traverse?

A. It permitted the waters to enter Lake Traverse in a materially lesser time.

Q. And what with reference to the volume?

A. The volume was greater, of course. That is involved in getting it there in less time. More is going per second or per day and there is somewhat less water under the earlier conditions due to the detention in the basin from evaporation and other causes.

Q. In reaching that conclusion did you take into consideration any particular calculations?

A. I took the volume of flow of the river from certain measurements made by the Geological Survey.

Q. Which river are you speaking of now?

A. The Mustinka river, in 1916—I believe, at the bridge near Wheaton, and in 1917 at a bridge further up. I have utilized the rating curve made by the Geological Survey and made estimates of what the flow must have been through the Mustinka river from the flood heighth that I believe existed, that I have reason to believe existed on account of certain drift observations.

Q. You mean observations of your own?

A. Yes, sir, observations of my own. I took into consideration also some information given me without regard to who the person was—simply hearsay—things that were talked of in the neighborhood.

Q. That is in these calculations?

A. Well, they were confirmatory rather than depended upon—of the flood heighth I am speaking now.

711 Q. I will ask you to state what, in your opinion, will be the effect of the continuation of this ditch construction that we have here now. By that I mean this Mustinka ditch construction—on the overflow of the Bois de Sioux river in the area here in question, if that construction is continued in its present state?

Mr. Palmer: Objected to as assuming a state of construction at the present time, and not the state of construction at the time of the injuries complained of, and involving constructions other than the Mustinka state ditch.

A. It is inevitable that we must have floods of greater range than the floods of 1915 and 1916.

Q. And is it your opinion that this ditch construction which you have already described will be the producing cause of those floods as long as they are continued?

A. Yes, and I might say, the period, the duration of the floods will be extended by reason of the impairment of Lake Traverse as a detaining basin.

Q. Do you mean by your last answer or not that if those conditions were continued you would expect periodically in the future as great or greater floods in the Bois de Sioux valley in the region here in question?

A. Yes, sir, and of longer duration.

Recess taken until 1:30 p. m., at which time hearing resumed with all parties present.

712 Cross-examination.

By Mr. Palmer:

Q. What is the normal level of Lake Traverse, the normal mean elevation of Lake Traverse, with the locality there in a natural state?

A. I believe it varies from about 973 up to perhaps 976. Perhaps I might say at the time we took levels in June it was about 973.86, as I recollect it. Mr. Ralph's levels during the flood time indicated 977.

Q. He gives the normal mean elevation, I think at 974?

A. Yes, I believe so.

Q. Would you think that is approximately correct?

A. I believe the normal low water elevation was as low as 974. I should say 974 might be a very reasonable mean.

Q. Now to what elevation do you assume that this ditching construction will lift that mean elevation from 974?

A. Oh, from three to six inches. That is, we will have a new mean elevation in the future that might differ from three to six inches.

Q. Well, say four inches as an average?

A. That might be a fair average. It is not quite the average of the two, but the nearest inch.

Q. Well, that would make what?
A. 974.33.
Q. Now, to what elevation do you think under present conditions and precipitation such as took place say from November 1, 1915, to April 1, 1916, would it raise the lake?
A. Can we place that at April 6th?
Q. Yes.
A. That appears to be the date of the crest as set down by Mr. Ralph—977 the elevation actually taken.

713 Q. Do you assume that every year there will be a precipitation equal to that of the period that I have mentioned in 1915 and 1916?
A. No.
Q. What do you assume would be the average amount of precipitation in the ordinary year from November to April?
A. I haven't made any reduction of the yearly average which is about 24 inches.
Q. It is about what per cent less than in 1916?
A. That is for the full year, Mr. Palmer,—Beardsley station the nearest——
Q. You needn't go into that detail?
A. Shall I take the mean as indicated on this sheet?
Q. What per cent less in the ordinary year now do you assume the precipitation to be from November to April?

Mr. Boutelle: Do you mean the average normal?
Mr. Palmer: Yes sir.

Q. From November, 1915, to April, 1916?
A. About forty-eight per cent above normal. The normal precipitation during that period would be 3.59 inches, and the precipitation has an average taken by me of 5.26 inches, a difference of 1.23 inches for the five months. As a per centage that seems pretty large, but when it comes to inches it is rather a reasonable amount.
Q. Then, to have the same degree of flooding in the Bois de Sioux valley, that we found in 1916, it is necessary that the winter precipitation be considerably greater than the average?
A. No, the precedent condition of the water surface of Lake Traverse—in other words the condition of our detaining basin enters. If the detaining basin happened to be a foot below the mean level it could receive a considerable quantity of water before we had any flood conditions.

714 Q. But we are assuming that the present conditions lift the level of Lake Traverse considerably?
A. You mean the flood conditions in the spring of 1916?
Q. Well, I thought you meant the mean—that the present condition raised the mean elevation of the lake?
A. Yes, I had that in mind, which was a new precedent condition.
Q. And with that new precedent condition and a rainfall forty-eight per cent above the normal you would have the same amount

of flooding in the Bois de Sioux valley that you had in the spring of 1916?

A. I think, Mr. Palmer, that you are rather neglecting the fact that you can't take the number of inches of rainfall and the amount that it is above normal as an entirely safe guide in predicting a flood. The same rainfall might produce a run-off of twice as much under certain conditions as it would under others.

Q. What conditions are you assuming as the normal conditions when you say there is going to be a recurrence of these floods?

A. The conditions of run-off are so complex that I wouldn't propose for a minute to attempt to predict the amount of run-off from a watershed.

Q. Why do you undertake to predict with any degree of certainty the recurrence of these floods in the Bois de Sioux valley, then?

A. Because that is an average condition. It is a condition that is bound to come about and is recognized by all engineers as inevitable when you remove a detaining basin. For instance, if the state—or the tri-states, the Two Dakotas and Minnesota should cut a ditch draining Lake Traverse there is no question about the flood conditions we would have in the Bois de Sioux river.

715 Those things are certain. They are axiomatic even.

Q. Do you assume that the rainfall will continue at the normal, that is forty-eight per cent below the amount for the period that I have mentioned in 1915 and 1916?

A. Do I expect the rainfall to remain normal, is that the question? No, by no means.

Q. Now, what amount of precipitation, what percentage of the precipitation in 1915 and 1916 do you assume in your answer to the effect that there will be a recurrence of these floods?

A. I assume we will have a very much greater rainfall than we have in the past ten years, and a great flood will come along that will be very much accentuated by reason of these constructions from what it would in the absence of them.

Q. These conditions are going to accentuate the rainfall in that locality?

A. No, I think they will have no influence on the rainfall, but the rainfall will not remain at twenty-four inches.

Q. Why?

A. Because it doesn't. It varies every year—from year to year.

Q. Will it be more or less?

A. More some years and less some other years.

Q. What will it be on an average?

A. Follow very close to the average of the past decade or twenty years.

Q. And that would be forty-eight per cent less than that of 1915 and 1916?

A. No.

Q. Well, during that period of time?

A. No, about thirty-five per cent less.

716 Q. And if it continues thirty-five per cent less for the corresponding period in the years to come then it is going to flood those lands in the Bois de Sioux valley?

A. I haven't said that.

Q. What did you say about it?

A. I say we will have flood years, years of plentiful precipitation, and other conditions favoring run-off when the axiomatic effect of these ditchings in the state of Minnesota will be to make the flood higher than it would be in *there* absence.

Q. Well, then in the average year, the years of normal precipitation, during the period that I have mentioned, there will be no flooding of these lands in the Bois de Sioux valley?

A. I have said that precipitation is only one of the elements. It is the dominant element. You have taken the months where there is an accumulation of snow and ice and condition of temperature at the break-up of winter have a great deal to do with flood conditions.

Q. Don't you take those into consideration when you give this opinion?

A. Yes, whatever natural conditions exist with the new artificial constructions we will always have a higher flood than the flood that existed in the absence of these constructions in the state of Minnesota, and if we don't have any flood we will have a little higher lake level normally in my judgment.

Q. Now I asked you what other natural conditions you took into consideration in addition to the rainfall in figuring a recurrence of these floods—what other natural conditions will recur?

A. We have this one constant condition of water brought with a higher velocity. I took into consideration the fact that
717 rainfall is the predominant influence, or precipitation—when I say rainfall I mean snowfall as well; temperature conditions, a sudden breakup, all the causes that tend to make floods. Those are the natural ones.

Q. Are there any other natural causes that tend to make floods?

A. A great many.

Q. What are they?

A. The nature of the watershed has some influence. Evaporation has an influence. The wind aids evaporation.

Q. Does the saturation of the watershed play any part?

A. In certain watersheds it plays quite a large part.

Q. Does it in this one?

A. It has some influence—not large. By that I mean that the reservoir capacity of the soil is not large.

Q. Why?

A. It is a shallow soil underlain by a clay subsoil. There is no perceptible water table and the bottom of the ditch appears to be giving out no water. It is easily drained by evaporation, if I may use that term.

Q. It is easily drained by evaporation?

A. I mean the soil is shallow and conditions are good for rapid absorption of the water by evaporation, the water in the soil.

Q. What is the nature of that soil?

A. The surface soil is a black clay loam, perhaps a foot to a foot and a half in thickness, and it is underlain by yellow clay.

Q. Is there a difference in the geological formation of the soil on the top and that below?

A. The soil on top I imagine is the accumulated effect of vegetable growth working upon the other soil, and also the in-
718 filtration of silt brought from above.

Q. But, in general, it is the same soil so far as the geological formation is concerned?

A. It is clay, and my judgment would be that black soil was simply a mixture of the clay and the vegetable matter, the general absorption of vegetable matter and its decaying.

Q. And is that the formation of the soil through this so-called Delta zone?

A. Yes, that is what I have particular reference to.

Q. So the soil there in its natural state wouldn't absorb very much water?

A. That is my judgment.

Q. I want to leave that for just a moment. And I will ask you if you took into consideration any other natural conditions than the saturation of the watershed, the degree of saturation of the watershed?

A. Of course distribution of the rainfall is a very important factor, whether it is accumulated into compact storms or distributed over a long period of time.

Q. Did you assume in your opinion as to a recurrence of these floods a saturated watershed?

A. So far as natural conditions are concerned I assume that these will continue not vastly different than at the present time. Cultivation may be a variable there. That of course has some small influence.

Q. Which way?

A. Probably it lessens the run-off although that is problematical.

Q. That is, the soil, after it is broken up and cultivated absorbs more water than it did before?

A. Well, I imagine it is a very small amount, Mr. Palmer.

719 Q. Especially don't you think that the cultivation of that boulder clay would cause it to absorb far more water than it did in a state of nature covered with prairie sod or prairie grasses?

A. Well, the plow I don't think goes down into the lower clay. It is this surface soil that is turned over.

Q. You don't think that would make any difference?

A. I don't think it would be a very large difference.

Q. Now, in the spring of 1914, we will say, this watershed would necessarily be very dry, would it not?

A. In March, 1914, we had an excess precipitation and again in April, so I see no reason why the water shed should be dry. In October of the prior year, 1913, we had an excess, and with some few deficiencies through the winter season, some small deficiencies—the actual total deficiency in November and December, 1913, and January, 1914, amounts to about an inch and two-tenths.

Q. Deficiency?

A. Yes, sir. Then we have in the months of March and April an excess amounting to better than an inch and three-tenths, so there is a little excess.

Q. So that in the fall of 1914 and Spring of 1916 the watershed would be pretty well saturated?

A. Well, it was the spring of 1914 we have been discussing.

Q. I thought you mentioned practically all the months of 1914?

A. No, I mentioned as far as March and April. May shows a deficiency of an inch and a little over one-tenth.

Q. What year was that?

A. 1914. June shows rather a heavy precipitation, an excess of four and a half inches. After that we have two months of July and August with deficiencies amounting to nearly two inches; then in the month of September, an excess of six-tenths of an inch,
720 and October a little less than two-tenths of an inch; November and December deficiencies amounting to better than four-tenths of an inch.

Q. So there would be considerable saturation of the watershed in the Spring of 1915?

A. February, 1915, shows a considerable excess—about sixty-eight hundredths of an inch. I imagine the soil is saturated in the spring, almost every spring.

Q. And what would you say as to the spring of 1917, the condition of the watershed?

A. November and December balance each other. November has a deficiency of six-tenths of an inch, and December an excess—that is in 1916.

Q. In 1917?

A. January has an excess of sixty-three hundredths of an inch, February an excess of thirty-two hundredths of an inch, March has a deficiency of seventeen hundredths of an inch, and April an excess of forty-five hundredths of an inch.

Q. What then would be the condition of the watershed as to saturation for the early spring of 1917?

A. I should say it would be saturated.

Q. Now, will you give me the percentage less of rainfall from November, 1916, to April, 1917, and the corresponding period in 1915 and 1916?

A. In the months of November and December, 1916, and January, February and March, 1917, we show an excess of precipitation of about twenty-one per cent, where in the case of 1915 and 1916 we had forty-eight per cent excess.

Q. How much per cent less do you make it in the corresponding period in 1916 and 1917?

A. One has an excess of forty-eight per cent and the other has an excess of twenty-one per cent.

Q. One is about twenty per cent larger than the other?

721 A. Well, when we get into little quantities like these percentages are rather confusing.

Q. Well, I imagine they are, but am I correct in that?

A. The earlier years shows about twenty-two per cent greater than the latter.

Q. But still the period in 1916 and 1917 shows twenty-one per cent over normal?

A. Yes.

Q. Now if we have a saturated water shed and an increase of twenty-one per cent over the normal and Lake Traverse at a state of 974.33 or greater we have a flooding of these lands into the Bois de Sioux valley?

A. You mean did we have? I don't know what the elevation of Lake Traverse was.

Q. Well, I asked you to assume that it is 974.33 or greater?

A. I know as a matter of fact we didn't have any large flooding of the lands in the Bois de Sioux valley, but we did have one in the Mustinka valley. We had 2,300 cubic second feet running down the Mustinka river.

Q. What did you mean when you spoke of a recurrence of the flooded condition—a recurrence in the Mustinka valley or Bois de Sioux?

A. I have spoken of both a minute ago.

Q. You say there was a flooding of one in the spring of 1917, the Mustinka, but not the Bois de Sioux?

A. Yes, the water went over its banks in the Mustinka valley in 1917, that is above Wheaton.

Q. Why didn't it go over its banks in the Bois de Sioux?

A. I presume because it didn't last long enough or came down so slowly. Just let me explain. Where the snow is melting and we have cold days off and on we may have the snow-fall go off in a greater number of days. I don't know what that condition
722 was. 1917 promises to be a parallel year with 1910, which is one of the lowest years of precipitation we have had.

Q. I am asking you about the flood conditions there. You say that the water probably this spring came down more slowly than it did ordinarily?

A. I don't know.

Q. Well, I thought you said it would make a good deal of difference—it would come a good deal faster on account of the construction of this ditch?

A. The construction of the ditch doesn't entirely set aside those variations in temperature that God Almighty imposes.

Q. That is true, then, isn't it?

A. It has one artificial condition that is superimposed on these complex natural conditions.

Q. Then the construction of the ditch doesn't accelerate the flow of the waters in the spring time unless the conditions are particularly favorable to it?

A. We must consider then two conditions; one, this area of water shed in a state of nature, and then the water shed under artificial condition, with identical conditions. Unquestionably we will get more water in the latter case.

Q. Now, take the artificial condition, the construction of that cut-off ditch running east and west, as compared with the old river that ran northward around the bend and then southwesterly, which will break up earlier in the spring?

A. The old river or the cut-off ditch?

Q. Yes.

A. What do you mean by break up in the spring?
Q. To allow the water to pass through?
A. I expect either of them will allow the water to pass through, or both, which is the actual condition at present.
723 Q. Which would allow the water to pass through earlier?
A. I don't know.
Q. You can't form any opinion about that whatever?
A. You mean pass a certain fixed quantity of water through?
Q. I asked you which would open up first in the spring?
A. I don't know.
Q. Now this cut-off ditch being quite deep in the ground—you saw it there—and running east and west filled with ice and snow, and the old river running practically north and south for the greater part of its natural length, you think the sun would get into that ditch and thaw that out sooner than the old river?
A. I think it would be nearly an even thing.
Q. These artificial conditions that have been created out there affect the action of the sunlight?
A. No, not largely.
Q. Does it affect the quantity of the rainfall?
A. Not at all.
Q. Does it affect the quality of the soil to absorb water?
A. Under certain conditions, yes.
Q. How?
A. Where the soil is dried out it becomes a reservoir for some rainfall.
Q. So that there is a factor which should be taken into account, that these ditches dry out the soil through the times of comparatively light rainfall, and place it in a condition to absorb a greater amount of water in times of plentiful rainfall?
A. By a very small amount. The ground water flowing through that soil would be exceedingly slow and the evaporation would
724 be tolerably rapid from that soil. The reservoir capacity of the soil in my judgment is not very large.
Q. Well, it is larger now than before it was ditched?
A. Academically, but not very considerably.
Q. Well, why do you say that. I might have misunderstood you. I simply want to get all the factors that engineers do consider. Why do you talk about it in this case if it is not a factor?
A. It is a factor—a little one. I have said so.
Q. Isn't it true in common experience that the greater the amount of ditches in agricultural lands such as these the greater the reservoir capacity of the lands in times of flood?
A. Well, it forms a very small reservoir in this case in my judgment.
Q. Forms some—more than it did before you say?
A. A little.
Q. Now isn't it true also that the greater the amount of ditching there is in agricultural lands, the more uniform the delivery of the water to the natural water courses?
A. No, sir, that is not so.

Q. The soil absorbs more, but it goes away just the same and just as rapidly?

A. Yes, sir, the predominant thing is time of excessive flow and the waters precipitated rapidly.

Q. That is what I am talking about?

A. You think the suggestion is correct that if we ditch Lake Traverse, as you propose, we would make the flow in the Bois de Sioux more uniform, but of course it wouldn't be.

Q. You say this—that the ditching of this agricultural land in the area of this so-called Delta zone and the surrounding lands, by these numerous ditches tend to dry out the soil in times of little rainfall and give it a greater absorbing power in times of ex-
725 cessive rainfall that it had before?

A. I have said, yes, a very little.

Q. Now, if that is true, would it not tend to make the discharge of the water from these lands in times of flood more uniform—I will say somewhat more uniform and gradual than in a state of nature?

A. No. The effect would be a much greater precipitation in times of plentiful supply than in a state of nature, and to send down more water in times of storms than would have gone down in a state of nature.

Q. But that is simply because of the drainage of the waters away from the lands in times of flood?

A. Well, it is a more rapid transportation system for the mobilization of the water.

Q. And in order to have the mobilization of the water you would have to have a sufficient quantity of water to saturate the land beyond its absorbing capacity?

A. Yes, that little quantity of water must be had first, and then the transportation system takes greater masses of water down with greater rapidity and in greater volume.

Q. I want you to tell me now whether, with Lake Traverse at a state of 974.33 and upwards, and a saturated watershed, and the precipitation twenty per cent less during the months of November, December, January and February and March than it was in 1916, there will be a recurrence of these flood conditions in the Bois de Sioux valley?

A. There was no considerable——

Q. I didn't ask you whether there was or not. I ask that the answer be stricken out as not responsive.

A. My judgment is founded on the fact that there was no flood.

Q. What is your judgment founded on for a recurrence of this flood?

726 A. That natural causes will remain the same and new artificial conditions that tend to create floods have been created.

Q. And will continue to be created?

A. And will continue to be created.

Q. With the artificial conditions now created, irrespective of those which you took into consideration which will continue to be created as you say in the future, and Lake Traverse at a state of 975, I will

say, and a precipitation during the period I have mentioned of twenty-one per cent less than in 1916, will these floods recur in the Bois de Sioux valley in your opinion?

A. I don't know. The complex of things causing run-off is so intricate that I cannot answer the question.

Q. Then the complex conditions entering into the matter of run-off make it difficult to form any reliable opinion as to the recurrence of these floods in the Bois de Sioux valley?

A. No, that is not so.

Q. Why?

A. Because we have super-imposed on these complex natural conditions this one artificial influence that engineers all know tends to create floods—the removal of a detaining basin and the impairment of a second one.

Q. That is all the answer you can make to that question, Dean Shenehon, is it?

A. That is the answer I have made, Mr. Palmer. I will be glad to answer further, if you will elaborate.

Q. All right, answer further?

A. I say, if you will elaborate on what you wish me to say.

Q. If we find in 1917 within twenty-one per cent of the amount of precipitation we found in the same period in 1916, a saturated watershed, and Lake Traverse at an elevation of 975.5, should you
727 have found, under your theory, a condition of flood on the lands in the Bois de Sioux valley?

A. I don't know. I am afraid you don't understand my theory.

Q. Now if in the future we find we have an elevation, we will say—of 975.5 in Lake Traverse, rainfall during the period mentioned of only twenty-one or twenty-two per cent less than it was during this period in 1915 and 1916, a saturated watershed, and the present conditions obtaining—all the conditions obtaining that obtained in the spring of 1917, will we have a recurrence of these floods in the Bois de Sioux valley?

A. If the identical conditions that obtained in 1916 including all temperatures, winds and conditions of the watershed, variation in temperature, distribution of the rainfall, all the complex conditions are reproduced, with perhaps the one element of a little less rainfall we probably would have a flood that would be just a little lower than the flood of 1916.

Q. If the lake started somewhat higher the flood might equal or possibly exceed that of 1916?

A. I can't minutely compute that, Mr. Palmer.

Q. You say you asumed that these artificial conditions will raise the lake's normal level to 934.33?

A. Yes, sir, approximately.

Q. Now I am asking you to assume that it is more than a foot higher than that—975.5, and you have a saturated water shed, and you have a rainfall only twenty-one per cent less than it was in this corresponding period in the fall of 1915 and spring of 1916, and I ask you if, in your opinion, there will be a recurrence of this flood in the Bois de Sioux valley?

A. I answer that if all the conditions that did exist in 1916 co-

exist with the two elements that you have mentioned, and
728 the variations of the two other elements, that is, rainfall only twenty-one per cent in excess instead of forty-eight per cent in excess, and the lake higher, we would doubtless have a flood, but its exact magnitude I could hardly compute.

Q. Well, whether we would have it at all—you don't undertake to give any forecast on that?

A. I am not flood forecasting, except on the principles where we have eliminated something that we know has a value in making even water flow and obstructing flow.

Q. You are forecasting a flood providing all the other conditions aside from the rainfall are paralleled in future years?

A. If 1916 comes in again with an exact reproduction of all the elements and at that time the lake is found to be at 975.5, I imagine we will have a flood of greater magnitude than the flood of last year.

Q. Suppose it has twenty-one per cent less rainfall?

A. It is difficult to enter that into the complex—a small variation in the rainfall. We are not dealing with a great many inches, and you are getting down to pretty minute quantities.

Q. You are dealing with twenty-one per cent above the normal?

A. Things sound larger when you put them in percentages. In one year we had 5.26 inches and the other 4.35 inches in five months. That is a little less than an inch difference. And an inch in five months, a fifth of an inch or a litle less than that of a month—you are getting down into pretty small quantities to ask me to predict on.

Q. What in the world are you predicting on?

A. On my judgment as an engineer of flood structures and methods of preventing them and methods of causing them.

729 Q. Now I want to ask you what it is that you assume to be the main artificial condition which has been created there to cause these floods?

A. An improved transportation system for the water.

Q. What else?

A. That is the main thing; the impairment of Lake Traverse by making it easier for the water to get down there.

Q. From where?

A. From the watershed above the outlet of the cut-off.

Q. It doesn't do anything only run down hill does it?

A. Well, that is the way to get to Lake Traverse.

Q. Certainly, and that is all the water does now and all it has ever did was to run down hill, wasn't it?

A. Yes, and it runs down hill out of Lake Traverse, but I could make it run down hill a little faster if you would give me a dredge, a few men and some money for a few months.

Q. By dredging out the Bois de Sioux river?

A. Yes, sir.

Q. How far?

A. From three miles above White's Rock. You would have to have a gulch down to the Rabbit River.

Q. And that would drain it?

A. Yes sir.

Q. Perfectly?

A. Yes sir. We would have flood conditions then that we don't have now. We would have eliminated another detaining basin.

Q. And put it all onto the other fellow?

A. Yes, sir.

Q. And that is what was done here? They eliminated and destroyed a natural basin something like Lake Traverse?

A. Not exactly like Lake Traverse.

Q. Well, what is Lake Traverse?

730 A. A lake.

Q. A detaining basin?

A. Sure.

Q. Now you spoke of another detaining basin, didn't you, a first detaining basin?

A. The Delta zone.

Q. Where is that?

A. Above the outlet of the cut-off.

Q. How large did you estimate it was when you said it raised this lake?

A. I didn't make any assumption. I looked over that country and in my judgment all that fact complex of cut-off canals and state ditches and improved Mustinka river from the outlet of the cut-off to Lake Traverse and the laterals or ditches entering it in my judgment increased the run-off of water in the flood conditions substantially fifty per cent.

Q. That is what I want to know. How large a detaining basin was destroyed to increase that run-off fifty per cent?

A. I don't know.

Q. Don't know anything about it?

A. I don't know.

Q. And didn't consider it at all?

A. I have viewed the conditions, and in my judgment as an engineer, which is the best judgment I can give you, the run-off is fifty per cent greater than in a state of nature.

Q. Just answer my question. You don't make that any stronger by saying it over and over. Now how large an upper detaining basin did you take into consideration as destroyed when you gave your opinion?

A. I don't know.

Q. Didn't you form in your mind any estimate whatever of the size of that detaining basin?

A. Well, I can't definitely define it Mr. Palmer. I don't

731 care to state metes and bounds on it.

Q. Well if the destruction of it—if you estimate that the destruction of it increased that run-off fifty per cent, I want you to tell me how large a detaining basin there had to be there in order to destroy and increase that run-off fifty per cent?

A. I don't wish to define it any more than I have.

Q. Well, you don't wish to. What did you assume in your mind when you made that estimate? Did you guess at it?

A. No it was an act of judgment.

Q. What is your judgment on the size of that detaining basin?

A. My judgment is that it was fifty per cent more of run-off which would be a matter of 800 cubic second feet.

Q. Now, the run-off from the detaining basin increasing it 800 cubic second feet—how large would it have to be in your judgment?

A. It would have to be a number of square miles.

Q. Well, I suppose it would. It might have to be two. That would be a number. Might have to be one. That would be a number. Was it one?

A. I said a number.

Q. Well, what number, if it had a number?

A. I don't know.

Q. You don't know anything about it?

A. I don't know or didn't know, anyhow.

Q. And you don't exercise any opinion or judgment as to the size of that detaining basin that was destroyed when you say it increased that run-off fifty per cent, do you?

A. I don't wish to determine the limits of the basin. Here is a great stretch of country involved, and facilities for getting the water off from that country have been worked out, artificial conditions created, and as I have viewed that, driven over it, I have
732 reached the conclusion that fifty per cent of the—that the run-off has been increased that much under flood conditions, such flood conditions as we had in 1916, substantially fifty per cent.

Q. Would it make any difference about the size of that detaining basin that was destroyed?

A. Yes.

Q. If it was 5 square miles would it be large enough to increase this run-off 50 per cent?

A. No, I think of it as nearer 100 square miles.

Q. You think it was 100 square miles?

A. No, I said it was nearer 100 square miles; it is some considerable number of square miles.

Q. You think it was in the neighborhood of 100 square miles. Now, show me where it was.

A. It is in what is known as the delta zone.

Q. Show me where that is.

A. In the zone traversed by the Mustinka river, Five Mile creek, Twelve Mile creek, even the Mustinka itself.

Q. Is it substantially where Mr. Ralph has indicated in the light blue shading on this map, Complainant's Exhibit 1?

A. It reaches in my judgment pretty well towards the headwaters of Five Mile creek and Twelve Mile creek.

Q. Will you look at this map, Complainant's Exhibit 1, and tell me whether you think Mr. Ralph has indicated that substantially correct?

A. I can't make the bounds, Mr. Palmer. It is a region axile on the state ditch, the cut-off and the region in that vicinity, at the confluence of the waters and extending upwards.

Q. Is that a basin?

A. Yes, I think it may be defined as that. It is not a level water basin, you understand, by any means.

733 Q. You couldn't have a level basin?

A. Not on a slope, there is some slope coming in there.

Q. If it is a basin, will you kindly tell me where the lowest point in it is?

A. At the outlet of the cut-off.

Q. That is the center of the basin?

A That is the spigot.

Q. The land slopes to that both ways, north, south; does it?

A. There isn't much slope to the south, as I have it in mind.

Q. If there is no slope there, how do you make a basin out of it?

A. The rim of the Mustinka river, I think, defines that fairly well.

Q. The rim of the Mustinka, the old Mustinka river, defines the northern limits of the delta zone?

A. Yes, sir; in my judgment there wasn't a great deal of flooding beyond that; some, you understand, but not a great deal.

Q. None to speak of. Well, if that wasn't the rim I wish you would show me the rim, or tell me where it was.

A. That is as near as I can define it.

Q. Then you cut off from this delta zone of Mr. Ralph's all of that portion northerly of the old Mustinka river?

A. No, I don't think that is quite accurate. I am afraid I have made myself misunderstood by saying that the rim of the river actually is the limit of the zone of flooded waters. It doubtless extended beyond that to some extent.

Q. How far?

A. That I don't know.

734 Q. To what?

A. There apparently was a zone of overflowed lands to the north there.

Q. To what did it extend to the north?

A. I don't know.

Q. What formed its northern rim?

A. I don't know.

Q. Did it have any northern rim?

A. Not necessarily.

Q. How did the fall of the land continue from then on?

A. The land is falling, as I have it in mind, towards the west.

Q. North?

A. And somewhat towards the north.

Q. It keeps right on falling too, doesn't it?

A. Yes, sir.

Q. And the water kept right on falling, didn't it?

A. In small quantities, I think.

Q. It kept on falling faster in flood times than it did in other times, didn't it?

A. Yes, I imagine so.

Q. And it falls yet, doesn't it?

A. Just where?

Q. To the north and northwest?

A. Yes, I imagine there is some water flowing to the north and northwest.

Q. How much of a slope did this delta zone fall to the north and northwest, average?

A. I don't know; you mean beyond the Mustinka river?

Q. Anywhere; commencing at the south side of it and going northwest, how much of a fall did it have?

A. Perhaps towards the south there, the contours indicate about 5 feet to the mile.

735 Q. Got it yet, hasn't it?

A. Yes, sir.

Q. I wish you would tell me, Dean Shenehon, how it is that you make a basin, a detaining basin, out of an area of land that has a fall of 5 feet to the mile to the northwest past this Mustinka river and on to the northwest; how do you make a basin out of that?

A. You mean if there is a basin you can't have any water flowing over the rim, is that my understanding?

Q. I mean if that is the situation, then that didn't form any basin, did it?

A. Sure.

Q. How?

A. It was a converging place for waters, and those converging waters flowed over a large area of territory. I have stated 100 miles might be some approximation, some suggestion.

Q. I haven't asked you what——

Mr. Boutelle: Just one moment——

The Witness: Let me illustrate another basin, so that you can make clear this thing.

Mr. Palmer: I wish you would not; I wish you would answer my question.

The Witness: I can so much better answer it if I make an illustration. I would rather like to answer those questions in my own way.

Mr. Palmer:

Q. Go ahead and give a lecture.

A. I am not going to give a lecture, I quit that. We have a basin formed, a flood basin, between the high bridge and White Rock and that water was on a slope. We had a basin in what we call the delta zone, the delta and detaining basin, and it is

736 on a slope. The water is moving infinitely slowly across this land, interrupted by blades of grass or furrows it is working towards this confluence of the water, it piles up, it accumulates, and in that place where it accumulates it made a bigger outlet and that is the detaining basin. In the older days the back-up of the water was in my judgment a very considerable; the streams had a less capacity of flood on account of back water conditions, there was no interception of the water by ditches, the natural channels were the only things to facilitate it in getting it towards the cut-off ditch and the rectified Mustinka river where it could be speeded towards Lake Traverse.

Q. In your opinion is the Bois de Sioux valley a third detaining basin for these waters?

A. As regards the points below the river it is, yes, sir. The Red river itself forms a detaining basin for things further on. Wherever the water flows over the land and is detained, that is a detaining basin.

Q. I am unable yet to quite understand how it can flow over the land and be detained. I wish you would explain how water can flow over land sloping at the rate of 5 feet to the mile and still be detained.

A. If we can think of 5 feet to the mile, which is rather a vague thing in our minds, as an inch and one-eighth to 100 feet, we will understand more clearly how a sheet of water coming over a flood plane is a basin.

Q. It wouldn't stay there, would it?

A. Oh, it is moving slowly. The water in that basin I speak of between the high bridge and White Rock has a velocity of about one-tenth of a foot per second and that is very much deeper than the water I conceive of approaching from 10 or 20 miles to make the basin we are talking about.

Q. How deep do you think that the water would be on this detaining basin 100 square miles in extent there?

737 A. I don't know.

Q. How much water would there be there?

A. I suppose there would be all depths, from one-sixth of an inch up to 2 or 3 inches under various conditions.

Q. There would have to be enough there to increase this run-off of 50 per cent, you certainly would have some water?

A. If you have a thickness of one-sixteenth of an inch you have all the chance for evaporation, perhaps better than you would have if it is 2 feet.

Q. Then the thinner the water was on there, the longer it was detained?

A. The slower it ran.

Q. But, of course, the thinner it was on there, the less there would be to increase the run-off, wouldn't there? It would run slower and evaporate faster?

A. Yes.

Q. Would it make any difference whether that detaining basin was in a state of natural prairie sod or in a state of cultivated farms as to its detaining qualities?

A. I think that is nearly a stand-off. The water coming across——

Q. Which is the odds in favor of?

A. I wouldn't be able to say. I think we may have a little higher evaporation from the cultivated fields.

Q. In your opinion was this delta zone in a state of nature susceptible of cultivation and habitation by men?

A. In part.

Q. What part?

A. I am afraid I can't state the metes and bounds on that either.

Q. Can't you give any opinion on it?

A. Men will take all sorts of risks on cultivation. A settler

approaching that region in 1910 would be likely to locate there and think he had a farm. It is characteristic of men that
738 they will take any long chance on locating farming lands.

Q. Well, that is what these people did in the Bois de Sioux valley, too, didn't they?

Mr. Boutelle: Considering that Minnesota is going to put in these ditches.

Mr. Palmer:

Q. You can answer this question without Mr. Boutelle telling you how to answer it. That is what these settlers in the Bois de Sioux did, didn't they?

A. It appears from the events that followed that they were flooded, if that is what you mean. I think for many years their venture appears to have been a good one.

Q. How do you know that?

A. From the evidence.

Q. Were you ever there?

A. On the ground?

Q. Yes.

A. Oh, sure.

Q. Prior to this condition?

A. No.

Q. Have you been there recently?

A. Yes. I was there in May and June and July and September.

Q. So far as water is concerned, their lands are just as susceptible to cultivation as they ever were this year, aren't they?

A. This is not a flood year.

Q. Will you kindly answer the question: this year, what would you say about that?

A. This is a year when the farmers are suffering in that vicinity from drouth.

Q. Would you answer the question yes or no?

739 A. Yes, but they have learned of a new hazard.

Q. You say a settler coming there to this delta zone in 1910 would probably settle there. Do you think that prior to the construction of any part of this ditch or any of these other ditches that those lands were suitable for cultivation?

A. Some of them.

Q. How many of them?

A. I don't know.

Q. Well, in your opinion, how many were, considering the conditions there as you have assumed them to be in your opinion here of its being a detaining basin of the waters of the moraine zone?

A. I don't know.

Q. Do you think they are any more susceptible of cultivation now than they were then?

A. I should judge they were.

Q. Would it make any difference in your opinion, Dean Shenehon, if that delta zone described here by Mr. Ralph and placed upon

this map by Mr. Ralph, this map, Complainant's Exhibit 1, never had any existence?

A. I don't understand your question, Mr. Palmer.

Q. Read it. (Question is read by reporter.)

A. Let me see if I can answer that, Mr. Palmer. Here is a piece of country 100 miles or more in extent where the engineers of the state of Minnesota have expended money, thousands of dollars, to get rid of the water in order to make them more habitable, so that they may be used for farming lands. The cut-off ditch and the rectification of the river and the old state ditch were built for that purpose and built by engineers, and I assume that the ditches have served their function in facilitating the disposal of waters from these lands. If they have performed their function that water must have gone somewhere, and Lake Traverse, I apprehend, is the re-
740 ceptacle, Lake Traverse and the Bois de Sioux river.

Q. Take the old river as it was in a state of nature, couldn't these drainage ditches that you speak of have been constructed into it just the same?

A. The capacity of the river was inadequate as I see it. The cut-off ditch and the old state ditch have made effective the whole meshwork of ditches over these lands.

Q. You think that an adequate outlet could have been found of the drainage of the southern part of this delta zone into Twelve Mile creek?

A. I don't believe I understand you.

Q. In a state of nature?

A. I don't believe I understand you.

Mr. Palmer: Read the question.

The Witness: I understand the question, but Twelve Mile creek, of course, leads into the Mustinka, and the Mustinka is the outlet of Twelve Mile creek, and I don't quite understand—Twelve Mile creek does not lead to Lake Traverse except through the Mustinka river and the cut-off in the rectified river, and that is the reason I don't understand your question.

Mr. Palmer: Read the question.

(Question is read: "You think that an adequate outlet could have been found of the drainage of the southern part of this delta zone into Twelve Mile creek in a state of nature?")

A. No, I think Twelve Mile creek had an inadequate outlet itself and therefore could not stand any surcharge from additional drainage.

Q. And Twelve Mile creek overflowed then, having an inadequate outlet?

A. At the confluence and in that region I have no doubt it overflowed.

Q. And flooded the surrounding lands?

A. Yes.

741 Q. Now, do you think that the Mustinka itself overflowed?

A. To some extent.

Q. Where, after Twelve Mile creek joined it?

A. Both north and south and in the vicinity of Norcross.

Q. I say, after its confluence with the Twelve Mile creek and the Five Mile creek?

A. Yes, sir, I have no doubt it overflowed.

Q. After it made the turn and started down into Lake Traverse to the southwest, do you think it overflowed there in a state of nature?

A. I think there was some overflow in that region.

Q. And flooded lands down there?

A. There was some overflow, yes, sir.

Q. Quite a flood plane down there in a natural state?

A. Yes, sir.

Q. You think this ditch from its standpoing as an engineering project was successful?

A. Why, to a very considerable extent.

Q. You think it operated to prevent those floods along the Mustinka?

A. You mean on the lower portion?

Q. Yes.

A. Oh, there was a flood there this spring.

Q. Where did that come from?

A. It was very brief. Well, the concentration of waters in the delta zone going down suddenly, I imagine they will need a little more of rectification of the river to avoid any floods, temporary only, a few days, I apprehend those floods are along that region.

Q. Do you know how they are, their duration as compared with a state of nature?

A. I haven't any definite information on that; I can only
742 judge by the channels themselves.

Q. Have you any information as to the quantity of water in the delta zone compared to what it was in a state of nature, that is, subsequent to the construction of this Mustinka ditch?

A. Only by judging its facility of outflow.

Q. Do you think it would be considerably less?

A. I don't quite understand.

Q. Do you think it would be considerably less water there?

A. In a state of nature?

Q. Than it was in a state of nature on this delta zone at the times of flood, we will say, 1916?

A. I think there may be in times of flood a concentration there that last for a short time and with a better outlet it is rapidly thrown off. The Twelve Mile creek and the Five Mile creek doubtless drive down more water than they did before.

Q. Why?

A. Ditching operations leading into that, tributary to them.

Q. You would take into consideration the ditching operations that are tributary to the Five Mile and Twelve Mile creeks?

A. The cut-offs and the rectifications of the Mustinka river make effective the ditching along those two streams. In other words, they transfer to Lake Traverse what before, what under the original conditions prior to the cut-off ditch there, would have been more con-

centrated at one point, at the confluence of all these rivers or delta zone, that is transferred further down.

Q. That would set further back more flooding on the lands further up the river or streams, I understand you to say?

A. Under the earlier conditions.

743 Q. Do you think that the restoration of this river and this cut-off and this—we will say, this entire Mustinka state ditch, to a state of nature, would destroy the outlet to those ditches, those other ditches?

A. No, I think they would effect a lingering condition, a surcharged condition in the vicinity of the loop, that point where the waters come together, that would have lasted over a longer period of time; they would have gone down to Lake Traverse more slowly.

Q. Practically then destroy the outlet to the present system of ditches that there are into Five Mile creek and Twelve Mile creek and into the Mustinka ditch itself, the restoration of it to a state of nature?

A. It would have made conditions worse at the confluence of the waters.

Q. And that is all, that is the only place?

A. To restore this particular thing?

Q. Yes, sir, to restore this, the Mustinka ditch, to its natural state?

A. Of course, I can't compute how far up the slopes, the backwater slopes, might extend under those circumstances; I don't know what the flood plane would be.

Q. If you don't know, why do you say that you take those into consideration in saying that they bring the water there?

A. I assume that that is what they are built for and that they serve that purpose.

Q. Wouldn't nature have taken them there, down those streams, just the same to that confluence, whether this ditch was made or not?

A. Not with the same rapidity, not with the same volume.

Q. They have better outlets, then?

744 A. Yes, sir.

—. And the restoration of the river to a state of nature would impair at least those outlets?

A. Sure.

Q. And some of them, those nearest around that confluence and down the portion of the river that runs southwesterly, would destroy them?

A. Not entirely, of course.

Q. But very materially?

A. Yes, sir.

Q. You have described a flood plane of the Mustinka east of Norcross and running, we will say, to the confluence with Twelve Mile creek?

A. You mean west of Norcross?

Q. I mean west of Norcross.

A. In that vicinity.

Q. Now, in your opinion, was this construction of this first sec-

tion of the Mustinka ditch a successful piece of work from an engineering standpoint?

A. It was, it doubtless drove the water a little bit further down, by lowering the plans of the stream above Norcross it doubtless had some effect in making the lands better in that immediate vicinity but I should say not a great deal.

Q. And the waters you say having a general northwesterly course, the flood waters, they would have continued on in that direction just the same practically?

A. You mean, got down into the confluence of the waters?

Q. No, if they went on northwesterly, we will say, into the Rabbit river.

A. I don't conceive there was any large flow in that direction.

Q. Not even in flood times?

A. No, sir.

745 Q. Not enough to be of any substantial consideration as bearing upon this increase in the run-off?

A. I regard the Rabbit river as substantially carrying the same amounts as it did in a state of nature.

Q. Something was said by Mr. Ralph, Dean Shenehon, about this opinion that this ditch ought to have been made commencing at a point on the west side of this northerly bend of the Mustinka and running northwesterly into the Rabbit river; he thought the water ought to have been taken in that direction instead of down into Lake Traverse. In your opinion, would that be a sound piece of engineering and a better piece of engineering than the one that was constructed?

A. No, I think the construction that was made was the better judgment.

Q. Do you think that the construction that was made was the only feasible construction?

A. You mean to relieve these lands in the delta zone?

Q. Yes.

A. Well, I haven't given the various alternatives any consideration, Mr. Palmer. That is, I haven't studied it to see whether I would have taken exactly the same course that the engineers did. At first sight I should say I would. There might have been some shorter cut-offs to the Mustinka from Twelve Mile Creek without going through the lower Mustinka river.

Q. There are some now, aren't there?

A. Not draining the area, I think.

Q. How?

A. I think not going directly into the Mustinka except outside of what originally was the drainage basin of the upper Mustinka.

Q. But that was the only natural and feasible place to take this drainage, was down the Mustinka and into Lake Traverse?

746 A. Well, the reason in my judgment it was better to have done it that way than to take it to the Rabbit river is the fact that this Lake Traverse was a detaining basin that saves the lower river somewhat?

Q. Did you examine the lands any down-stream from the confluence of the Rabbit down toward Wahpeton?

A. Yes, I drove the meridian road down to Wahpeton and looked over the river occasionally.

Q. What would you say as to the river overflowing or flooding?

A. It is deep in its banks there, I don't believe there are any large overflowed areas below the Rabbit, that is between Wahpeton and the mouth of the Rabbit river.

Q. Did you gain any information as to whether the floods went across at a point some miles south of Wahpeton across into the Wild Rice river?

A. I don't know anything about that Wild Rice territory.

Q. Did you make any inquiry there?

A. No, sir, it did not seem to be essential in this case. If it did I imagine it was a state of nature and I am simply adding the artificial condition to whatever the state of nature was.

Q. I mean if we had added that artificial condition on to the Rabbit river by taking this drainage from this delta zone and that adjacent territory on into the Rabbit river, that it might have created more serious flood conditions down below the confluence of the Rabbit than were created by transferring it to Lake Traverse?

A. I am not sure of that. The banks are pretty high there and I am inclined to think the slope towards the river is sharper; there would have been some overflow doubtless under those circumstances.

747 Q. How large an area do you assume as being tributary to the upper Mustinka in your answer to the hypothetical question?

A. I think that was given as about 600 by Mr. Ralph, if I recollect, and Professor Chandler and myself have made some reductions. Do you care to have those or is 600 feet near enough?

Q. I want you to exclude Five Mile Creek, I want you to exclude 20 square miles that Mr. Ralph himself cut off between Lightning Lake and the Mustinka.

A. We have the Mustinka river drainage east of the Great Northern railway as 283 determined by Professor Chandler from Mr. Ralph's, and 253 determined by Professor Chandler from Mr. Nelson's map, the additional above the outlet of the old state ditch totaled 600, reduced by Mr. Ralph to 580.

Q. That includes the Five Mile creek?

A. Additional above the outlet of the new cut-off——

Q. Let me see if I understand you. Do you mean excluding or including in this 580, do you mean excluding or including the area tributary to Five Mile Creek?

A. That would include the area, I haven't the separate areas of the Five Mile and the Twelve Mile creeks. The areas of the total amount above the cut-off, the new cut-off, derived by Professor Chandler from Mr. Ralph is 628 and Mr. Nelson is 721.

Q. Have you got the total drainage area tributary to Lake Traverse and the Bois de Sioux below the Rabbit?

A. Let me give this in detail and then I will give you the total. Additional above the Wheaton railway bridge 44 square miles from

Mr. Ralph's map and 55 from Mr. Nelson's. These are all derived by Mr. Chandler working in collaboration with myself but working with considerable independence. That gives a total above the bridge at Wheaton, which is a gauging station of the geographical
748 service of 672 from Mr. Ralph's and 770 from Mr. Nelson's map; additional above the mouth of the Mustinka, 77 square miles from Mr. Ralph's map, 85 from Nelson's making the aggregate for the flow of the Mustinka where it enters Lake Traverse 749 from Mr. Ralph's map and 861 from Mr. Nelson's.

Q. Now, give me the Dakota areas, please.

A. Additional Lake Traverse drainage are to the point of outlet in Minnesota there are 84 square miles by Mr. Ralph's map and 74 by Mr. Nelson's map; in South Dakota 121 square miles by Mr. Ralph's map and 194 by Mr. Nelson's map, aggregating 205 square miles and 268 square miles, Ralph and Nelson, respectively. At the outlet in South Dakota 53 miles Ralph, 102 Nelson; in North Dakota, zero miles Ralph, 73 miles Nelson, making an aggregate of 258 Ralph, 175 Nelson, both in square miles. The total Lake Traverse area then gives, according to Mr. Ralph's map, 1,030, according to Mr. Chandler's determinations from Mr. Ralph's map, 1,007, and from Mr. Nelson's map 1,304 square miles.

Mr. Boutelle:

Q. By Mr. Ralph's map you refer to Complainant's Exhibit 1?

A. Yes, sir.

Q. And by Mr. Nelson's map?

A. The large contour map prepared by Mr. Nelson (Defendant's Exhibit 6.)

Mr. Palmer:

Q. I want to ask you, Dean Shenehon, in a general way, what do you assume the water level in Lake Traverse to be when these lands in the Bois de Sioux valley are flooded?

A. Well, about 977; in Lake Traverse you stated?

Q. Yes.

A. Under the conditions of April 6th; that was the figure that was put into the testimony by Mr. Ralph and we have some corroborative levels by Mr. Withee taken under my direction.

Q. And that is substantially correct?

A. Yes, sir, I think so.

749 Q. As I understand it, your opinion involves the conclusion that it was the influx of water from these artificial conditions in the summer of 1915 and spring of 1916 that caused these flooded conditions in the Bois de Sioux valley?

A. Yes.

Q. How much do you think this 50 per cent increase in the run-off raised the lake in 1915?

A. I don't know what it was in 1915, I haven't any elevations for 1915.

Q. How much do you think it raised the lake in 1916 from what it would have raised in a state of nature?

A. About 10 inches.

Q. What do you assume the area of the lake to be at the time of its being 10 inches below 977?

A. The area of the lake is about 30 square miles under flood conditions and the flow area about 10 miles more between White Rock and the Lake and I think there is about 20 miles below White Rock to the vicinity of the high bridge.

Q. How much water would you have to have to raise this area 10 inches, 30 square miles?

A. About 800 cubic feet, second feet, over a period of 10 days.

Q. And you think that that came from this delta zone, water that would have remained upon that land and not reached Lake Traverse in a state of nature?

A. Yes.

Q. You do?

A. Yes.

Q. 800,000——

Q. No, 800.

Q. 800 second feet?

A. 800 cubic feet per second for 10 days.

750 Q. Would have remained on this delta zone and never have reached Lake Traverse?

A. Over the whole area involved, wherever ditching may occur.

Q. You didn't take into consideration, Dean Shenehon, any other ditches than this Mustinka state ditch, did you?

A. I considered ditch construction which the Mustinka improved capacity and the new cut-off made effective.

Q. You considered the ditch constructions that have been made since the spring of 1915 and that now exist there?

A. No, sir, not in the retrospect; wherever I spoke of anything that will happen in the future I assumed those that are at present constructed.

Q. As I understand it you formed no opinion as to the amount the lake was raised in the summer of 1915?

A. I haven't any levels whatever on that, Mr. Palmer.

Q. What percentage of this increase in the run-off would you ascribe to the lateral ditches having their outlet into this Mustinka ditch?

A. I can't separate it into its component parts.

Q. You say, however, that without this Mustinka ditch being the center of a system of ditching, it would not have had the effect that you mention?

A. I think of the whole thing as a web made effective by the cut-off ditch and the rectification of the Mustinka river.

Q. That one can not be considered without the other?

A. I think of them as a whole.

Q. I say, your opinion is that thinking of them together as a system an intelligent opinion could not be formed?

A. I haven't made any.

Q. I assume the reason you didn't make any was because there could not be any, is that correct? That is, any reliable
751 opinion, of course.

A. It would be very difficult.

(At this time adjournment is had until Tuesday morning, September 25, 1917, at 10 o'clock.)

September 25, 1917.

Hearing resumed, pursuant to adjournment, with all parties present.

FRANCIS C. SHENEHON, recalled, and examination continued.

Redirect examination.

By Mr. Boutelle:

Q. Dean Shenehon, at various places in your direct and cross-examination in reference to the existing conditions in the Mustinka river, you referred to the betterment of the river, the new channel and the rectified channel, and descriptive terms of that kind. By that what did you mean?

A. I mean the artificial changes made to facilitate the flow in speed and volume.

Q. What with reference to this particular case? What part of the river did that refer to?

A. The Mustinka river from Lake Traverse to the lower or down-stream end of the cut-off the cut-off itself, and the state ditch—the old state ditch of the middle 90's?

Q. In other words, it is the Mustinka state ditch that is involved in this case?

A. Yes. In my mind this exists as three elements, the old state ditch, the cut-off, and the rectified river below the cut-off.

Q. You also referred at various places, and I think it has been mentioned with other witnesses, to the cut-off. Now
752 as I understand it, the reference to the cut-off refers to what part of the Mustinka state ditch?

A. It is that portion extending along the southerly boundary of Sections 13 and 18, Township 128, Ranges 45 and 46, and extending for a distance of about two miles until it meets the loop of the original Mustinka river, extending down-stream two miles, approximately.

Q. At various points in your testimony you referred to the map of Mr. Ralph's. In that reference you mean the map, Exhibit 1, that has been introduced in evidence here?

A. Yes, sir.

Q. On your direct examination, if you recall, I asked you to attempt to visualize or explain a fall of so many feet to the mile and asked you to illustrate in terms of one hundred feet, taking

for illustration a fall of a foot to the mile. You answered according to the transcript as follows: "About an inch and one-eighth. No, I am in error, that was for five feet to the mile—an inch and one-eighth to the hundred feet." Now what did you mean by that?

A. One foot to the mile would be substantially a quarter of an inch to the hundred feet, and five feet to the mile would be an inch and one-eighth to the hundred feet.

Q. On your direct examination, Dean, I asked you if you had made a sufficient examination of the Mustinka state ditch, referring to both the original and extension of that ditch, with a view to comparing its capacity to the former original channels that existed in a state of nature, and you said that you had. I omitted to ask you to give me a general idea as to which had the greater capacity?

A. The new artificial constructions, the rectified river as I like to call it, or the new state ditch, has the higher capacity.

753 Q. Is that appreciable?

A. Yes, substantial.

Q. To make a formal correction, I notice that in asking you the hypothetical question I inquired in each instance whether you were able to express an opinion. I intended to use the word whether or no you were able to form an opinion, and I suppose your answer would be the same?

A. Yes.

Q. In answering a question on your direct examination as to the cause of the flood or overflow with which we are dealing, after stating that it was the ditch construction, I asked you a further question as follows: "Q. That is, the Mustinka state ditch, as we have termed it?" to which you answered, "The Mustinka state ditch and the various constructions leading to it and from it. I must include the whole system because the Mustinka river itself between Traverse and the basin itself must be included." What did you mean by "between Traverse and the basin?"

A. That would be the rectified Mustinka river between the foot of the two mile cut-off and Lake Traverse.

Q. You were asked, Dean, on cross-examination, at a number of different points a question in substantially the following form: If we assumed a water level in Lake Traverse of 974.33 and upward, and a precipitation during the months of November to March following, inclusive, in each year, of twenty-two per cent or thereabouts in excess of the normal, whether we would expect a recurrence, under those conditions, of floods in the Bois de Sioux valley, and you stated in substance, that the complex of this question of precipitation and run-off rendered it very difficult to answer a question of that kind. Will you explain your answer a little more fully?

A. I mean that while the various natural elements which

754 combine in a great variety to cause run-off on floods, forming a complex, as I have used it, render it difficult to forecast a flood, nevertheless, a certain modification of the watershed had been brought about, the inevitable and axiomatic effect of which must be to accentuate and increase the level of the flood.

Q. Is an average of precipitation taken from an arbitrary period of six months or thereabouts a criterion under all conditions?

A. No, the distribution and the various circumstances have much to do with it.

Q. Now just what do you mean by distribution?

A. Well, the flood in Ohio, as an illustration, was caused by a precipitation of nine inches in a few days—three days, as I recollect, in the year 1913. We have cases where nine inches or ten inches spread over a month would have no such flood making capacity.

Q. Then is it or is it not a fact that we may have a series of months in which the rainfall would be practically normal and yet in a portion of that period we might have rainfalls very much in excess of the normal which might be productive of flood conditions?

A. Yes, that is true.

Q. On cross-examination you were interrogated by the counsel with reference to conditions similar to those obtaining in 1917, and the following question was asked: "Q. What is your judgment founded on for a recurrence of this flood?" to which you answered that: "The natural causes will remain the same and new artificial conditions that tend to create floods have been created." "Q. And will continue to be created? A. And will continue to be created." What do you mean by that?

A. Well, while on the ground in the Delta zone in-
755 volved in this case I observed that dredges were at work creating new ditches. I had in mind the completion of those ditches; that these would add something more to the ease of the run-off, the rapidity of the run-off and the volume of run-off.

Q. And by that did you mean, that as that ditch construction was increased there would be a tendency to increase the flood conditions; that is, with the natural conditions which you have already described?

A. Yes.

Q. On your cross-examinantion you were asked in substance how much water would be required to raise the level of Lake Traverse ten inches when it stood at 9.75 and had an area of 30 to 35 miles, and your reply was: "About eight hundred cubic second feet over a period of ten days." The following question was then asked you: "Q. And you think that came from this Delta zone water that would have remained upon that land and not reached Lake Traverse in a state of nature? A. Yes." "Q. Eight hundred second feet? A. Eight hundred cubic feet per second for ten days." Was that what you meant to reply?

A. No, it was that this water would not have reached Lake Traverse within the ten day period. Some portion of it would never have reached Lake Traverse, and the time—the precipitancy is the element in the balance.

756 Recross-examination.

By Mr. Palmer:

Q. You say you took into consideration in forming your opinion as to the recurrence of these floods the ditches that you saw being constructed there, the dredges at work?

A. Yes.

Q. Well, who is making those ditches?

A. I didn't inquire.

Q. So far as your knowledge goes those are not state ditches, ditches being constructed by the state of Minnesota?

A. I have no knowledge that they are.

Q. Dean Shenehon, I find in the Bill of Complaint that the construction of this Mustinka state ditch resulted in raising the stage of the waters of Lake Traverse and the Bois de Sioux river approximately five feet above the normal level of high-water mark. I don't know if I clearly understand your testimony, and I would like to ask you if it is to the effect that this entire ditching system resulted in 1916 in raising the waters of Lake Traverse about ten inches above the normal level of high-water mark?

A. That is my conclusion.

Q. Are you of the opinion that in 1916, taking into consideration all of the conditions obtaining there and the excessive precipitation, that Lake Traverse would have reached a stage of ten inches below what it did attain had it not been for this ditch system?

A. That is my judgment.

Q. Are you of the opinion that in a state of nature, prior to the construction of this ditching system or any part of it, the waters of Lake Traverse ever attained the same stage that they did in 1916?

A. I have no information regarding that.

757 Q. I appreciate that. I want your opinion as to whether they ever did?

A. I think I have stated that already.

Q. Or ever would?

A. I have stated in my evidence already that with a combination of natural conditions of precipitation, of temperature, of distribution of the rainfall, those elements entering into the run-off and those things which tend to cause floods, and superimposed on the effect of the natural condition in this one inevitable, axiomatic effect of the artificial condition. If a flood which raised Lake Traverse to 977 had existed before, that under this new state of affairs it would have been ten inches higher.

Q. But it might have attained in a state of nature at times the same stage which it attained in 1916?

A. I think that is possible.

Q. And it is possible that it might in the future have attained that same stage without this ditch construction?

A. That is also possible.

Q. What stage, Dean Shenehon, as bearing upon the recurrence of this flood condition, do you assume for the waters in Lake Trav-

erse in order to bring about this flooding of the lands in the Bois de Sioux valley?

A. I assume that Lake Traverse has had its mean elevation raised somewhat by the construction of the ditches even in times of not excessive supply, and in times of plentiful supply; and that superimposed on this we have the flood condition that adds something more to that during the short period of time. We have a rapid precipitation of the waters from the watershed upon the Lake, and instead of coming down gradually so that the capacity of the channels may be adequate to dispose of the waters they come down so suddenly that the only effect is for the lake to rise and cut itself a new, bigger channel or outlet, which incidentally floods
758 the lands above White Rock and above the high bridge.

Q. But, Dean Shenehon, while your theory may be perfectly sound, and I don't question your intention to answer the question at all, still you must appreciate that a rise of four inches in the normal level of Lake Traverse would be material in this case if it did result in the flooding of these lands in the Bois de Sioux valley, and that is why I ask you to give me your opinion if you are able to form one as to what must be the stage of the water in Lake Traverse in order to bring about a recurrence of this flooding of the lands in the Bois de Sioux valley?

A. If you will tell me all the various elements of precipitation, its distribution, the state of the watershed, and in many ways the temperature, sunshine and wind—all the elements that enter in, and I myself had an opportunity over many years of deriving co-efficients that might enter into it, I might be able to form a conclusion, but at the present time I am not.

Q. You misunderstand me. What must be the stage of the waters above the level of the sea, the stage of the waters in Lake Traverse above the level of the sea in order to flood these lands in the Bois de Sioux valley?

A. The level of Lake Traverse at the crest of a flood——

Q. No, not the crest of the flood. I want to know how high the waters in Lake Traverse—have you taken any levels of the lands in the Bois de Sioux valley, Dean Shenehon, so you know at what stage of the waters in Lake Traverse these lands will be flooded?

A. Elevations have been taken by Mr. Withey under my direction,—Mr. Withey is Mr. Ralph's assistant—along the Dakota side from a little above White Rock to the vicinity of the high bridge.

Q. Well, then if you have those elevations——

A. Those elevations are based on the flood line marked out
759 by Mr. Ralph. I was not present at the time of the flood and I am dependent on such information as that in order to conceive the flood lines. Now in addition I might say that I have observed and confirmed the flood line in the vicinity of the high bridge. By that I mean I have noted evidence of drift on the bank and sized up the heighth of the drift above the level of the water at the time I was there, convincing me that there actually was a raise above the water's surface in May or June of 1917 of about five feet.

Q. A raise in May or June, 1917?

A. In May and June, 1917, I observed that there had been in the past a flood with an elevation of about five feet. And it was a reasonable raise as far as I could make out.

Q. Now, if you have taken those elevations in the Bois de Sioux valley, then I assume that you as an engineer—taking into account the fall from Lake Traverse to these lands—I assume that you as an engineer will be able to tell us at what heighth above the sea level, giving the figures, it is necessary that Lake Traverse rise in order to flood those lands?

A. Well, Lake Traverse is not the only feeder to that lower basin. The amount of water being brought down by the Rabbit river would have some influence on the heighth of the water at the high-bridge. That is the only one element. We have these other elements coming in. Lake Traverse is the parent pool, the pool through which the water brought down from this Delta zone comes, and it is a detaining basin as we have mentioned before, a retarding basin. Now if that were the only river entering the Bois de Sioux in that vicinity, and there was no water coming down from tributary territory below White Rock, down-stream from White Rock, we would doubtless have a different condition. But I assume they are all natural conditions. The only artificial condition we are dealing with is the ditching in the Delta zone, and I superimpose
760 on all those natural conditions the effect of the artificial constructions made by the state of Minnesota or its agencies.

Q. Now it would be only fair, Dean Shenehon, and I know you want to be manifestly fair, to super-impose on those natural conditions other artificial conditions which might contribute to this flooding, if there were any?

A. Yes, sir.

Q. Now you say that the Rabbit river would have some effect upon these lands in the Bois de Sioux valley by, under certain conditions, tending to raise the state of the waters back as far as the high bridge by Fairmount—what effect?

A. Flood stage in the Rabbit river in the absence of any large flow coming down from Lake Traverse would cause some considerable rise in the river in that vicinity and reaching back as far as the high bridge.

Q. Why?

A. Simply because it obstructs the channel, lessens the slope, and it has a back-water effect. That doubtless is present, but as I take it, it is a natural condition on which this other condition is imposed.

Q. Now, whether it is a natural condition or not is what I want you to consider. But first, taking its natural tendency or effect—it comes in almost at right angles with the Bois de Sioux channel, in fact it turns slightly to the south just as it enters the Bois de Sioux channel, does it not?

A. Yes, but in my judgment that would have no substantial influence on the back water effect.

Q. Well, the fact that it came in at right angles would?

A. No, it would be too trivial to consider, whether it came in

at right angles or deflected to the north a little bit or to the south a little bit. It would be inconsequential.

761 Q. Did you make an examination at the confluence of the Rabbit River and the Bois de Sioux to form an opinion as to which is the dominant stream at the confluence?

A. I can conceive conditions where the Rabbit river would bring down more water than the Bois de Sioux.

Q. In which case it would be the dominant stream?

A. Yes, that is the definition, I believe.

Q. Now, Dean Shenehon, will you let me call your attention to this map, Defendant's Exhibit No. 7, and I want you to tell me if this Rabbit river does not drain an area corresponding substantially topographically—if that is the right word—with this so-called Delta zone of the Mustinka river?

A. I haven't examined the extreme headwaters of the Rabbit except as they approach the Delta zone. I did not think that there were any high elevations in the head waters of the Rabbit. If they had of course that is a natural condition on which our artificial flood is superimposed.

Q. Well, the contour lines on the map, complainant's Exhibit 1, would seem to indicate, Dean Shenehon, that the lands tributary to the Rabbit river are certainly just as level or more level and are really at a lower elevation than the lands of this so-called Delta zone—it is practically the same formation, isn't it?

A. The Rabbit river has a more rapid descent. It is a stream that is confined to its banks over its lower course at least.

Q. That is because it goes through higher land as you approach the Bois de Sioux river, isn't it?

A. I had in mind that it was going through a country of greater slope, but I gave small consideration to that because I regarded it as a natural condition which had been possibly slightly modified by ditching and had been modified on the other hand by a little less water going over from the Mustinka, and those two conditions about balancing each other.

762 Q. Let me call your attention to this map and the ditching operations into the Rabbit river. I first call your attention to Judicial Ditch No. 9, constructed in 1910, which runs down through the Tintah slough and goes down over very nearly to the northerly point of the Mustinka river. Did you make an examination of that ditch?

A. I don't remember examining that ditch, Mr. Palmer. I possibly did cross it and possibly made a memorandum of it.

Q. It is a large open ditch some eight feet on the bottom?

A. Yes sir.

Q. And would that not tend to take these overflow waters, if there are any, from the Mustinka river away very rapidly and facilitate and concentrate the flow of these waters into the Rabbit river?

A. I have assumed that the cut-off ditch and rectification of the Mustinka River caused a lower flood plain, and therefore we have less escape of water from the Mustinka watershed to the Rabbit watershed, and we have a little increase in the waters of the Rabbit

from the ditching to the north and that is why these things balance each other.

Q. And that is why you assume that the waters carried by the Rabbit at the present time is just as much as carried in a state of nature?

A. Substantially.

Q. Now let me call your attention to this ditch marked State Ditch No. 18, running into the Rabbit River. Did you examine that ditch?

A. No, I didn't make any detailed examination of ditches at the headwaters of the Rabbit.

Q. Let me call your attention to the numerous other ditches running into that ditch last mentioned; and let me call your attention to County Ditch No. 5 of Grant county, and Judicial Ditch
763 No. 2 of Grant county. Did you examine those ditches to know the size of them?

A. I don't recollect making any memorandum of those ditches.

Q. Did you examine this consolidated ditch No. 2 very close to the borders of the Moraine zone?

A. No.

Q. Did you examine this Ash Lake that has been described here to ascertain whether that flowed into the Rabbit river?

A. No.

Q. Did you examine the conditions north of Campbell to see how many ditches came in from that direction?

A. No.

Q. Did you examine conditions along the Ottertail river to see whether there was a considerable overflow from the Ottertail river which had been ditches on town into the Rabbit?

A. No.

Q. Then, as I understand you, Dean Shenehon, if there was an artificial increase of flow of water into the Rabbit river that would accentuate this effect of the Rabbit to set the waters back upon the lands in the Bois de Sioux—set the waters of the Bois de Sioux back upon the lands in that valley?

A. Not where an amount substantially equal in volume had been subtracted from it or prevented from going across from the Mustinka basin. We have these two things, one off-setting the other. They appeared, as far as I could observe on these maps, and as far as I could see on the ground to about off-set each other.

Q. Dean Shenehon, if you did not examine the ditches into the Rabbit river, and if you know nothing of the area that they drain, if you know nothing of the condition of that watershed and nothing of the size or number of the ditches, I want to ask you how
764 you can form any reliable opinion that the same amount of water brought in by those ditches is taken from the overflow of the Mustinka and carried down the Mustinka?

A. I have answered that I have examined this ditch map prepared by Mr. O. B. Nelson, and I have given consideration to the possibility of water passing from the Mustinka basin into the Rabbit river, and as far as I could make a judgment, and I believe I have

reasonably good data, the thing is about off-set. There is another element coming in that I would like to add. This condition enters in the time of any sharp flood—that the Rabbit river very rapidly carries its waters into the Bois de Sioux and the flood crest passes before the water from the Mustinka can pass through its detaining basin at Lake Traverse, so it would be a very exceptional case where we would have one superimposed on the other. That is a state of nature. The Rabbit river takes its water off in a state of nature more rapidly than the old Mustinka did, and we have that condition of the Rabbit river discharge getting out of the way in part before the other comes down.

Q. But if there are ditches taking the water or drainage gradually into the Rabbit river?

A. I don't conceive in this case that that is the action of the ditches. They are mostly to precipitate waters in times of large flood. You are thinking of a case where we have ground waters that are gradually draining off through the ditches?

Q. Yes sir.

A. And in the case where we have a pervious soil where water will flow. In this particular watershed we have conditions of that pervious undersoil with very compact clay loam on the surface where any possibility of flow would be very slight indeed. It is the surface run-off that really counts, and the action of the ditches is to precipitate that on Lake Traverse through the Mustinka in
765 a less number of days than it would get down otherwise and cause a flood, and in the case of the Rabbit the speeding up of any additional ditches would clear away the flood before the flood *before the flood* coming down from the Mustinka could reach there. That is my conception of the matter, Mr. Palmer. I therefore concluded that any water that may have been brought in through artificial conditions of ditching on the Rabbit, such as I observe on this map of Mr. Nelson's, is substantially balanced by the lesser transfer of water from the Mustinka basin or the transfer of lesser quantities from the Mustinka basin in the Rabbit.

Q. But I take it, Dean Shenehon, that the speeding up process in the Rabbit river, so far as ditches are concerned is no greater than the speeding up processes in the Mustinka, except as you say there is a reservoir established for the Mustinka, to-wit: Lake Traverse?

A. Yes, that is the thing, as I see it—the retardation in Lake Traverse tends to offset any flood conditions from the Rabbit, and those I imagine are rather brief.

Q. And that is why you have stated here, Dean Shenehon, that if these lands were to be drained at all in this Delta zone, the only proper and feasible way to drain them would be the way they are drained?

A. Yes, I think to pass the flood waters through lake Traverse was a very wise provision, understanding of course that damage to the riparian owners should be compensated for as part of the project.

Q. That is, you think, that the private riparian owners of the Bois de Sioux should have been compensated?

A. Let me illustrate. If I were called in as an engineer on a water

power project and I should build a dam and cause a lake to be formed or a mill pond, an impounding basin where none ex-
766 isted before, as engineer, in my estimate, I would include damage to the riparian owners, and the state has utilized Lake Traverse as a detaining basin and utilized the inadequate channel of the Bois de Sioux, and riparian owners have been damaged. That is the way it appears to me. I, as engineer for the state of Minnesota, if I could have found any legal reason for doing so, would have said we will have riparian damages and we had better add something to that $35,000 to pay them.

Q. Now, Dean Shenehon, let me see if I understand you. This so-called Delta zone which you say comprises upwards of a hundred square miles, was not as you conceive it in a state of nature a lake, a watery waste?

A. A portion of it probably had standing water and another large portion had water that drained very slowly in a state of nature. It was going down gradually.

Q. Well, if the statement would be made that this Delta zone, which has been described by the witness Ralph as a watery waste and lake surface, and which he says comprises seventy-five square miles, which he has been pleased to color light blue on this map, Complainant's Exhibit 1, contained 125 to 130 cultivated frams with farm buildings, with fields and all the various farm improvements that obtain in any agricultural community in that part of the state of Minnesota, would you doubt it?

A. That is, if you should tell me there were a whole lot of farms there would I doubt it?

Q. Say one for every 240 acres of that so-called Delta zone, one set of farm buildings, on which the cultivator of the soil resided, and from which he gained his livelihood, without subsisting on fish or ducks or frog legs, but subsisting on the products of the soil, would you doubt it?

767 A. I have been over the region and I have seen farms there and I have seen how sparsely they dot the country, if you think of it in that way, the distances between farms.

Q. I am speaking of conditions as they existed prior to the construction of any part of this ditch system?

A. No, I shouldn't doubt your statement at all.

Q. Then it would be only fair, Dean Shenehon, to say that this Delta zone, as you conceive it, consisting perhaps of a hundred square miles, was agricultural land within the fair meaning of the term?

A. In part, yes.

Q. Well, what part?

A. We have a somewhat similar situation right here in Minneapolis—the Bohemian flats on the Mississippi river has quite a thick population, but we can't conceive of that as land that is not periodically flooded, and has not been in the past. People were living there and are still living there, and the flood menace is there. It seems to be a fact that men will locate lands in places where they know there will be a flood but where they can buy them cheap. But this

Delta zone is a flood plain, and the whole outlay as you go over the plain indicates that it has been flooded many times and that it is a place where floods prevail.

Q. Do you know anything whatever from actual knowledge about these lands prior to the construction of any part of this ditch system?

A. No, not from actual knowledge except as I could observe the conditions.

Q. Can you assume what I stated in that question and which can most certainly and conclusively be proven to be true, and if you do, I ask you to state whether those lands comprised within that

768 Delta zone may not, within the fair meaning of the term, be denominated agricultural lands?

A. In part, yes.

Q. What part?

A. I don't think I could give you a percentage.

Q. What right have you then to say in part, if you don't know anything about what part?

A. You mean that knowing the condition as a whole with two component parts which I don't attempt to set out in percentages, that I have no right to judge that there was any percentage. Is that the purport of the question?

Q. That is the question. If a man don't know anything about a thing what right has he got to pare it down?

A. The right of any sane man to make a judgment.

Q. Well, make a judgment and tell me?

A. I have told you some portion which I am not prepared to state, or set aside.

Q. Four or five square miles at the confluence of the Mustinka?

A. The whole flood plain has doubtless been submerged at times.

Q. Would it be fair to assume that all but four or five square miles at the confluence of the several parts of the Mustinka were agricultural lands within the fair meaning of the word?

A. I couldn't state the percentage, Mr. Palmer, or the number of times. I haven't a very concrete conception of the number of miles that might be called agricultural lands. My observation is that they are not all under cultivation even now. That is, when I say that some are meadow lands and some are pasture lands, and some are plowed lands.

Q. And are they now agricultural lands?

769 A. It appears to me that they are susceptible of cultivation at the present time, a large portion of them.

Q. Then, as I understand you, Dean Shenehon, here is the land in the Bois de Sioux valley shown here on this map shaded yellow and beginning at the south line of North Dakota and running northward in the shape of a bottle, its neck being the confluence of the Bois de Sioux river with the Rabbit river. There is an inadequate provision made by nature for the drainage of it?

A. That is true—just one minute—let me say that the channel of the Bois de Sioux is inadequate, I don't mean to say that the whole

a shaded in yellow is the channel of the Bois de Sioux. Here is a
ley that was flooded——
Q. And if they had an adequate outlet it would not have been
oded?
A. No, that is true. It is also true of the Ohio flood.
Q. Now under conditions of flood that Bois de Sioux valley as you
ve described it might become a detaining basin in itself?
A. Yes, it is more likely to under present conditions than under
tural conditions.
Q. Now south from the North Dakota line we have certain por-
ns of land immediately north of Lake Traverse which are on this
ap shaded yellow, and those also are a part of and very similarly
uated to the lands in the Bois de Sioux valley, and they may be-
me under flood conditions a detaining basin?
A. Yes, that is true.
Q. Now continuing southward we have a large swamp area before
arrive at the confluence of the Mustinka which I think is called
ud Lake and upper Mud Lake. Now those are practically a part
Lake Traverse that has been cut off for sometime probably by a
delta formed from an influx of the Mustinka. Is that true?
0 A. I am not certain of that.
Q. Would you say that they were naturally a part of Lake
raverse, Mud Lake and Upper Mud Lake?
A. There has probably been something up through this region
re. I imagine the backbone is of more solid material, the lands
tween the Bois de Sioux channel and the channel connecting Mud
ke and Club House Lake or Mud Lake itself and Club House Lake.
Q. Club House Lake is the part of the lake nearest to White Rock?
A. Yes sir.
Q. And Mud Lake is the one to the south of that?
A. Yes sir.
Q. And then the main Lake Traverse is to the south and south-
st of that?
A. Yes, sir.
Q. Now this main Lake Traverse, the real present Lake Traverse,
which I mean southward and southwestward of the influx of the
ustinka river is a true lake, is it not?
A. Yes.
Q. It has high banks?
A. In part. For the most part around the Mustinka it is rather
w lying, where the reservation bridge goes across.
Q. But as you go southward and southwestward from that the
nks rise very high?
A. Yes, it is very well sunk in its banks over a greater portion and
pecially on the south end.
Q. Rocky shores?
A. Glacial drift, I think.
Q. Rocky islands?
A. A few, I think, yes.
71 Q. And that of course is a natural detaining basin?
A. Yes.

Q. For those waters from all sides?

A. Yes sir.

Q. Now passing up the Mustinka itself, Dean Shenehon, the old river up to the former junction or confluence of Twelve Mile Creek and the upper Mustinka, that has well defined banks, has it not?

A. No, that is not true.

Q. I don't think you understood the question. At the point of the confluence of the old Mustinka river with Twelve Mile creek at Mr. Newman's House in Section 7, Township 128, Range 45, do you say that from there down to its outlet in Lake Traverse the banks of that river are not well defined?

A. No, the banks of the river at the point where the two mile cut-off enters are rather low and not well defined. The banks of the river from the foot of the cut-off down through, say to a mile above Wheaton were not in a state of nature, well defined. The river a thousand feet before the confluence of the cut-off channel with the river channel was shallow and an inadequate channel, much less in capacity than its channel at its northern extremity. Since the building of the cut-off that has been somewhat increased or washed out.

Q. Did you ever see that old river in a state of nature?

A. No, only as it is visible now as you go over the ground.

Q. Did you follow the old river around this northerly bend clear around to where the old Mustinka ditch joins it, in the loop?

A. Yes sir—the six mile loop you mean?

Q. Yes, did you walk around that?

A. No, I didn't walk around it but I observed it at various points at the extreme northern part. It has a bank about eight feet
772 below the level of the surrounding prairie and has a well defined marked channel there, but hasn't at a point perhaps a thousand feet above the confluence of the new cut-off, and as you go on down beyond the point of the confluence of the new cut-off with the river—on down stream—there are places where the old channel was not adequate and doubtless a flood plain there.

Q. No one said it was not inadequate there to carry the water, but I asked you if it has not a well defined channel?

A. If you mean by well-defined that it may be traced and no question as to whether that was the river channel, I answer your question, yes.

Q. But along the river during that distance particularly after you get above the point now marked by the Milwaukee Railway bridge northwest of Wheaton there is a considerable flood plain, particularly on the westerly side of the river?

A. That is going down stream from Wheaton, do I understand?

Q. Going upstream to the bend?

A. Yes, there is. It is not very extensive, but the river itself overflowed its banks there.

Q. And on account of the narrowing of the channel at a point, say, two or two and a half miles down stream from the railroad bridge there is a sort of bottle, we might say, there that forms a sort of detaining basin?

A. I didn't observe any large detaining basin in that portion of the river. It is acting from the escarpment there that I can speak

of it in that way, and it has the water power to cut its channel fairly adequate during that portion of it.

Q. You didn't see a large detaining basin, but there was a detaining basin there somewhat similar to this detaining basin we have spoken about in the Bois de Sioux valley?

A. I don't think it would be as extensive as that.

773 Q. I didn't say it was, but it was similar in formation and character?

A. The detaining basins after you get below the confluence of the cut-off with the old river are relatively small. They did exist and have been eliminated largely—you understand—largely. That doesn't mean that the water did not overflow in the spring of 1917.

Q. Of 1916?

A. Doubtless in 1916.

Q. And the summer of 1915?

A. I imagine it overflowed in the summer of 1916, but it was a new more adequate channel and the water was carried down more rapidly, and this time element is the big thing in all floods. It had a better outlet.

Q. You mean the channel where the valley narrows below the railroad bridge—that it was enlarged? Is that what you mean by saying it had a better outlet. What do you mean by saying it had a better outlet, and that there was any less of a detaining basin there in 1915, 1916 and 1917 than there was before?

A. I don't know of any detaining basin below the railroad bridge.

Q. Well, take the one above the railroad bridge. Why wasn't there just as much of a detaining basin there above the railroad bridge and on up to that northerly bend of the Mustinka in 1915, 1916 and 1917 as there ever was?

A. Because we had a more adequate channel to get the waters out of there rapidly. They would not remain there long and that is the essence of a flood. Aside from volume, the speed is the essential thing in creating of floods.

Q. If it stayed there on the land and spread out and flooded that flood plain it didn't spread very much?

A. Yes, I think it was speeding pretty rapidly down the

774 channel and as soon as the channel cleared itself this would disappear more rapidly.

Q. It sped down the flood plain too outside of the channel?

A. No.

Q. It speeded down there in 1916 and washed out the railroad grade a mile or a mile and a half northwest of that bridge, didn't it, and they had to build a new grade in there?

A. I have heard something of that. I don't know the details of it.

Q. I want you to tell me how this new channel, the digging out of that river could speed up the waters entirely outside of it running down that flood plain?

A. I think you misunderstand me. We now have a greater flow capacity of the river over a section where it originally had a very good capacity. I don't contend in a state of nature there was any great detention to that portion of the channel after the river passes into the cut-off, but having arranged by a series of constructions

in the Delta zone and the various branches of the Mustinka for more water to come down more rapidly in the springtime of course you would expect to enlarge the channel of the river also, and that was done as I understand it, and as I have observed it.

Q. You think there was any more of a detaining basin there after the construction of that first section of the Mustinka ditch than there was before?

A. Not in point of time. It is probably somewhat considerably spread over the land as a matter of expanse but couldn't stay there very long in my judgment. That of course is true of the upper detaining basin.

Q. And it is true of that detaining basin?

A. It has a little one, yes.

775 Q. But do you think that that construction of the first section of the Mustinka ditch brought the waters down there and created a new detaining basin?

A. Of no considerable value.

Q. And of no substantial extent beyond what it was in a state of nature?

A. I believe of no greater extent at all than it was in a state of nature.

Q. Now passing on above the confluence of the old Mustinka with Twelve Mile Creek, the old Mustinka, going up stream until you get to a point pretty near the railway bridge of the Great Northern northwest of Norcross, the old river channel was very shallow, and in some places very difficult to discern at all, Dean Shenehon?

A. Yes sir.

Q. But the Twelve Mile Creek which came up from the south was always a strong, well-defined stream, having relatively high banks as compared with the Mustinka and remaining within its banks until it reached the bend to the north?

A. I don't know that it remained within its banks. It has a well marked channel; the banks are fairly high.

Q. Now that drains a great extent of land to the south, southwesterly and southeasterly, and extends way down into Bigstone County around Graceville, and extends over into Stevens county, in the direction of Morris, and the area tributary to it is greater than both of the upper Mustinka and Five Mile Creek put together, isn't it?

A. I believe not.

Q. Do you know anything about that?

A. The watershed of the upper Mustinka, as I have it in mind, was between three and four hundred miles out of a total of six hundred miles.

776 Q. Let me see your figures on that. Tell me the area drained, if you can, Dean Shenehon, from your figures, by the upper Mustinka, cutting off Mr. Ralph's elephant ear of about twenty-five square miles, and cutting off the area drained by the Five Mile Creek?

A. The Mustinka river drainage area east of the Great Northern railway is, according to the map of Mr. Nelson, and computations of Prof. Chandler and myself, 253 square miles, and by Mr. Ralph's it appears to be 283.

Q. Now that takes in a part of the Five Mile drainage area?
A. No that comes in lower down.
Q. How much did you say it was a minute ago—four hundred and something?
A. 253, and the total amount going into the cut-off according to Mr. Nelson's map is about 721 miles and Mr. Ralph's 628.
Q. But from the upper Mustinka you say 253 square miles?
A. According to Mr. Nelson's map.
Q. Have you computed and figured it?
A. This was computed by Prof. Chandler in collaboration with myself.
Q. Now that area tributary to that upper Mustinka is this Moraine zone?
A. Yes, sir.
Q. And that you say is a rather hilly, broken country, interspersed with lakes and streams?
A. Very few lakes, that is of any extent.
Q. Very few?
A. They are small as a matter of area, as I have it in mind.
777 Q. I want you to look at that Wendell quadrangle, Defendant's Exhibit 3.

Mr. Palmer: We offer in evidence Defendant's Exhibits 8, 9, 10 and 11, 8 being Ashby quadrangle, No. 9 being Barrett Quadrangle, No. 10 Chokio quadrangle and No. 11 being the Morris quadrangle.

Q. I wish you would look at the quadrangles here, Dean Shenehon, complainant's Exhibit 4, Defendant's Exhibits 3, 8, 9, 10 and 11.
A. After examining those quadrangles there appears to be perhaps two per cent of this area lake area.
Q. Have you been over the area?
A. I drove from Elbow Lake westward until I intersected the Mustinka river and followed down the river itself and observed the watershed so far as I could going down that way.
Q. Well, there are numerous other depressions beside these lakes that hold water in times of flood until it reaches a high stage?
A. I imagine in an area of that kind there would be some depressions.
Q. Now what would you say as to the comparative velocity of the run-off from an area like that as compared with the velocity of a run-off from an area like that tributary to Twelve Mile creek, comparatively level land?
A. In the absence of ditching I imagine the run-off would be more rapid from the Moraine zone on account of the greater slopes and the restricted valley in which the river is flowing. It tends to keep its channel more definitely through that region. The valley is a V-shaped channel.
Q. What is the slope of the river from its source to the point where it makes the bend to the west?
A. I couldn't answer that question without looking the
778 matter up again. My observations in passing through the country indicate a fairly rapid slope.
Q. Did you pass along Twelve Mile Creek from its source northward?

A. I was at Graceville, and there we have the flat country, as I say.

Q. Do you know anything about the slope there?

A. It is not very rapid as I observed it.

Q. If you don't know what the slope of either of those streams is how can you compare them to state that the slope of the Mustinka through the Moraine zone is greater than the slope of the Twelve Mile creek through this prairie zone?

A. Because I visited both regions and observed the conditions, and that was the conclusion I reached. I crossed Twelve Mile creek at Collis, or the vicinity of Collis in going to Graceville, I believe it is, and I crossed it in passing from Wheaton to Herman and I examined it pretty thoroughly north of the Wheaton-Herman road. At Collis the elevation of the ground surface appears to be 1060 and the elevation of the ground surface in the vicinity of Elbow Lake, where I first touched the Mustinka river is in the vicinity of 1150. The difference in elevation is indicative of the fact that there are higher grades.

Q. What is the difference in elevation between Collis and up at the confluence of Twelve Mile creek with the Mustinka? Doesn't that give you your slope? About sixty feet or more, isn't it?

A. Yes, and the other slope is about 160.

Q. How is it down there where it turns west?

A. About the same as it approaches Norcross as it is at Collis, about 1060. So in a relatively short distance it slopes from 1150 down to 1060, a descent of ninety feet in a relatively short
779 distance. I think unquestionably the velocity of the water in the Mustinka in the Moraine zone and the capacity of flow is greater because it sticks to its channel fairly closely.

Q. Well, so does Twelve Mile creek stick to its channel very closely?

A. Well, of course it has tributary waters. How rapidly can they get to Twelve Mile creek and how rapidly can they get to Mustinka in the Moraine zone. Those are elements. And in the Moraine zone I think they reached the river more rapidly, and they are precipitated down on the floow plain where we have submergence in flood times or did in conditions of nature.

Q. Now in computing this area eastward of the Great Northern railroad and Norcross you are taking in a part of the Five Mile drainage area, aren't you?

A. Yes, I think that is a fact.

Q. Now we have, Dean Shenehon, for the drainage area tributary to the upper Mustinka 203 square miles. Do you think that that is approximately correct?

A. Why, I would want to verify that, but for the purposes of going on we may assume that.

Q. And tributary to Five Mile Creek, as we have computed it, we have 121 square miles?

A. Yes.

Q. And tributary to Twelve Mile creek, 364 square miles. May I assume those to be correct?

A. For the purpose of going on.

Q. Now, Dean Shenehon, I understand that in your formation

of this opinion you took into consideration a large, sudden precipitation of flood waters from this Moraine zone down on to the level prairie emprised within this so-called Delta zone?

780 A. Some very considerable flow, yes.

Q. Now, as a matter of fact there is less than forty per cent of the drainage area in this Mustinka river, the main Mustinka, by which I mean after the confluence with the Twelve Mile and Five Mile Creeks, that is in this Moraine zone at all? Do you think that is approximately correct?

A. Yes, it is slightly less than forty per cent.

Q. Now the other sixty per cent of that drainage area is within the prairie zone, is it not?

A. I think so.

Q. Now, Dean Shenehon, I wish you would tell me whether you have any knowledge as to the velocity of flow, or I will say precipitation from this area in the Moraine zone as to whether it is any more rapid than it is from the area within the prairie zone?

A. It would be my judgment that it does come down more rapidly.

Q. Twice as rapidly?

A. Oh, I can't state that.

Q. Now, in your answer to the hypothetical question, did you assume that practically all the waters that came down to this confluence came rapidly and came from the Moraine zone?

A. No.

Q. Did you assume that more than sixty per cent of them come from this prairie zone?

A. I assumed that water from various sources, including the upper Mustinka, Five Mile creek, Twelve Mile creek and from the sky were precipitated upon a flood plain. All those waters in a state of nature made their way down there and were detained. Under the new conditions of ditching and increased outlets they proceeded to Lake Traverse more rapidly, were cleared from the land;

781 in other words, the ditches accomplished the purpose of disposing of excess waters and getting them down to Lake Traverse.

Q. And you took into consideration the ditch systems, judicial, county, private and all other ditches both in the Moraine zone and in the prairie zone that carried water into any of the streams tributary to this Mustinka river, did you not?

A. I took into consideration the whole system of ditching including county and judicial. I didn't inquire whether it was a county or judicial or private ditch.

Q. So that the question in this case, as you conceive it to be, Dean Shenehon, is this: whether the state of Minnesota and its citizens can drain agricultural lands for the purpose of their improvement and reclamation into a natural outlet by rectifying and enlarging that outlet and depositing the waters in a natural, and I might add—substantial detaining basin, to-wit: Lake Traverse?

Mr. Pinkney: Objected to as calling for an opinion of the witness on a legal proposition. He is not a lawyer.

A. I conceive, Mr. Palmer, that every county ditch, every judicial ditch, every private ditch contributed to the condition in the Delta zone and that the old state ditch and the new cut-off ditch and rectification of the Mustinka river have made effective all those ditches.

Q. And that the purpose of the entire ditching system is the improvement and reclamation of agricultural lands that needed drainage?

A. The object of the ditching system throughout the whole system, the rectification of the river, the cut-off channel and all, were to lessen the flood hazard of the Delta zone or level prairie country, and the effect was to increase the flood hazard on Lake Traverse and the Bois de Sioux valley.

Q. I asked you the purpose, the evidence purpose and object of this drainage and you volunteer the effect. Now I ask you again —the purpose was to drain and reclaim agricultural lands
782 in this prairie zone that needed drainage?

A. The purpose was to dispose as rapidly as possible of all excess water in the prairie zone, and incidentally, I suppose its purpose was to make lands that were less desirable as farm lands more desirable as farm lands after the ditching system had accomplished its purpose.

Q. You don't mean incidentally, you mean primarily, don't you, Dean Shenehon?

A. Yes.

Q. Now, you took into consideration the drainage of these agricultural lands not alone in this so-called Delta zone but all this surrounding prairie country?

A. Wherever the ditching operation has augmented the flow in volume and in speed of disposal I included it, yes.

Q. Now you took into consideration also the carrying off of waters whether it be in times of flood or any ordinary seasons, Dean Shenehon?

A. Well, I conceive that the real value of the ditching system is to carry off water in times of plentiful supply. I don't see, Mr. Palmer, that there is any large ground flow. That water once getting into that soil, unless it is flowing on the surface, is likely to be absorbed by evaporation instead of running through the ground and reaching the ditches.

Q. I suppose you took into account also the tileing operations that will be put in from time to time and have been put in thus far?

Mr. Boutelle: Objected to as involving a supposit-us state of facts that has not been shown to exist.

A. I have not given any tangible value to the tiling.

Q. Did you take into consideration in forming an opinion as to the recurrence of these floods similar ditching operations that have taken place and will take place in the state of North
783 Dakota and South Dakota?

A. Only so far as the ditches have already been con-

structed, or were under construction during my visits there, and that would be all.

Q. Why do you take into account future ditching operations that will be carried on in the state of Minnesota and disregard future ditching operations that will be carried on in the states of North Dakota and South Dakota?

Mr. Boutelle: Objected to as the witness has not stated that he did anything of the kind.

A. I have taken into account no future ditching operations on either side.

Q. Now, you found ditching operations in the states of North and South Dakota both already established or in the process of construction, did you not, in the area tributary to the Bois de Sioux river and Lake Traverse?

A. I drove from Wahpeton which is on the Bois de Sioux river somewhat to the north of the water shed on the Dakota side of the Bois de Sioux and Lake Traverse. I drove from there to Lake Traverse paralleling the river and the lake, and I did not meet any ditches of any considerable magnitude. There are no ditches comparable with those in the state of Minnesota. I remember one will run that is to the south of Fairmount, a natural creek bed, that was dry and did not give evidence of any large flow. I don't recollect any ditches of any magnitude that enter the Bois de Sioux river from the Dakota side between Wahpeton and White Rock or between White Rock and Lake Traverse and Brown's valley.

Q. Is there any reason why this lake and river are not the natural and feasible outlet for the drainage of the agricultural lands westward of them in North and South Dakota, just the same as they are in Minnesota?

784 Mr. Boutelle: Objected to as immaterial to any issue in this case and involving a supposit-us state of facts of which there is no evidence.

A. If the need arises of ditches to make agricultural lands better on the Dakota side Lake Traverse and the Bois de Sioux valley are the water courses that would carry off the flow coming from those ditches.

Q. And they carry off today all of the overflow from an area in North and South Dakota that is about forty per cent of the entire drainage area into Lake Traverse and the Bois de Sioux river, in other words there is about sixty per cent of the drainage area of the lake and river in Minnesota and about forty per cent in North and South Dakota?

A. I have failed to find any ditches entering either the Bois de Sioux or Lake Traverse in the area involved in this controversy after having driven through the territory, I mean on the Dakota side.

Q. I haven't asked you one thing about ditches. I id overflow of surface waters?

A. Perhaps I can answer the question in this way, Mr. Palmer, that a portion of the watershed or drainage basin of Lake Traverse and the Bois de Sioux river is on the Dakota side, and that involves the fact that any water from that area does enter Lake Traverse or the Bois de Sioux.

Q. Well, what percentage of the area is it that runs off in there—first I will ask you to take Mr. Nelson's map——

A. About twenty-eight per cent comes from the Dakota side, both North and South Dakota.

Q. And have you computed the percentage on the Minnesota side outside of the Mustinka river drainage area?

A. You were excluding the Mustinka river area in your question?

A. No, of the total drainage above the high bridge?

785 A. 409 miles comes from the Dakota and 1053 come from the Minnesota side, according to the figures or areas derived from Mr. Nelson's map.

Q. Now, did you examine, Dean Shenehon, those lands over in North and South Dakota tributary to Lake Traverse and the Bois de Sioux when driving parallel to Lake Traverse from White Rock to Brown's valley and not finding any channels aside from the one already mentioned into which ditches might flow—did you say you went to Brown's valley?

A. Yes.

Q. Didn't you find what is called Jim creek?

A. I found little ravines coming over the escarpment into Lake Traverse but no evidence of any large flow.

Q. Let me call your attention to Cottonwood slough and Cottonwood Lake?

A. I didn't follow up into that territory, not finding any large flow coming in at any place I assumed that there wasn't any large flow, there being no channels for large flow.

Q. Now my question, Dean Shenehon, as to your opinion how high a stage the waters in Lake Traverse must attain before there is an overflow of lands in the Bois de Sioux valley appears to be unanswered. I don't mean now to ask you whether when it is high enough so it will be level full, but I want you to give me the elevation in sea level data as to how high that stage of water must be in Lake Traverse in order to overflow these lands in the Bois de Sioux valley?

A. How much of an overflow.

Q. I will say a substantial overflow so as to cause injury similar to that of 1915 and 1916?

A. I have computed that when Lake Traverse is at an elevation of 977 about 1200 cubic feet per second is precipitated into

786 the Bois de Sioux river. This gives a surface elevation at the high bridge 966.5. That is about one foot lower than the flood plain was at the high bridge. Now there is some water coming in between there which has been probably about 200 cubic feet per second, I think it is. Now, when Lake Traverse is 976 the outflow is about 760 cubic feet per second, and that would cor-

respond to about a flood elevation of about a foot and a half less than the flood elevation of April 6, 1916.

Q. How much land would that overflow—what percentage of this overflow area? It would be very little of it if it was a foot and a half less?

A. No, I think it would be quite considerable still. Now when Lake Traverse is 975 the outflow is about 420 cubic feet per second and the corresponding elevation at the high bridge would be about 964.5 or three feet below the present flood plain.

Q. At 975 what part of those lands do you think would be flooded?

A. Well, I couldn't give you that very definitely either.

Q. Well, very little?

A. I think a considerable portion. I mean there would be some considerable overflow.

Q. Well, more than there would be in a state of nature in the springtime?

A. Yes, that channel would not carry 760 or 420 without somewhat of an overflow. The channel itself is very shallow and very narrow and the condition of flood must be very slow in times of small flood.

Q. Now give me 974?

A. At 974 we will have a flow of 180 cubic feet per second and that corresponds substantially with the flow during June of this past year, provided the channel of the Bois de Sioux river below
787 the high bridge is washed clear of weeds and obstructions.

As a matter of fact in times of ordinary flow, this summer for instance, there was a less flow than 180.

Q. Then at 974 you don't think that there would be any flooding at all?

A. No substantial flooding, now. It was about the condition this summer.

Q. Well those lands were perfectly dry with the elevation at what it was this summer and there was no water even in the channel?

A. There wasn't that much water going through this year, and the values I have computed here are for conditions after the flood flow has wiped out some of the weeds and growth that grow up during the summer season. There was as I measured it 65 cubic feet runnng through the channel in June.

Q. Are you talking about the outflow in that eastern outlet under the bridge from White Rock?

A. Yes, there is very little coming from any other source. There it a little creek running down to the north of White Rock.

Q. Well, as soon as the water rises to any extent it runs out through there too?

A. Yes, I imagine some goes through there. Now you understand I don't conceive of White Rock as being the outlet of Lake Traverse. That is three miles farther up. The Bois de Sioux begins three miles above White Rock and White Rock is simply a station on the way.

Q. How many tenths is this four inches that you think this normal level would be lifted?

A. About thirty-three and one-third one-hundredths—somewhere around there.

788 Redirect examination.

By Mr. Boutelle:

Q. When you speak of farther up with reference to this Bois de Sioux you mean to the south, do you not, that is upstream?

A. When I say up I mean upstream.

Witness excused.

(Adjournment taken until 1:30 p. m.)

789 September 25, 1917, at 2.00 p. m.

E. F. CHANDLER being sworn in behalf of the complainant, testified as follows:

Examined by Mr. Boutelle:

Q. Professor Chandler, what is your profession?

A. Professor of civi engineering in the University of North Dakota, and civil engineer.

Q. How long have you occupied your present position?

A. With some changes in the exact title, I have been on the faculty there since 1899.

Q. What was the year of your graduation?

A. 1894.

Q. And from what institution of learning?

A. Ripon College, Wisconsin.

Q. Did you subsequently take a P. G. course?

A. I was in the graduate department of the University of Wisconsin taking the work in applied mathematics and engineering for two years, 1897 to 1899.

Q. During the time following your graduation up to the present has your engineering work followed any particular line?

A. It was general work, general practise, until 1903. In 1904 for one year I was state engineer of North Dakota, the work of the office was with reference to irrigation and the waters of the State of North Dakota.

Q. What phase of the waters particularly, professor?

A. The quantity and distribution of the water supply for irrigation, drainage and flood control. In 1903 I was appointed on the force of the United States Geological Survey and put in charge of the river record work for the United States Geological Survey for a district that has included from that time to this, fifteen seasons, has included the whole State of North Dakota and the north-
790 western portion of Minnesota and, through the last six years, South Dakota.

Q. In connection with your government work have you been required to keep records of flowage, elevation, floods, etc., in the rivers of your territory, various stages, etc.?

A. The work particularly under my supervision for which I have been responsible has been to maintain daily and monthly and annual records, continuous records of the quantity of flow and of the height of the water of the principal or typical streams through the whole district and we have maintained those records on as many streams in the district as the appropriations, federal appropriations and co-operative appropriations from the different states have permitted, more some years and less in others, enough to have a general knowledge for publication by the government bureau of the run-off, daily, monthly and annual from each section of the country.

Q. You mean by the country the country included in your district?

A. Included in this district, yes, sir.

Q. During your professional career have you had occasion to make a study of flood control?

A. From time to time the general reports on any proposed plan of flood control have generally been referred to me, not the details of the construction of the dams, of the material for dams, but the quantity of flood and the means by which it could be controlled.

Q. Are you familiar in a general way with the area involved in this case?

A. Yes, sir.

Q. And have you been over that area to some extent?

A. I have been through on every railroad that runs through there repeatedly and put in, on an estimate, 400 miles by auto, the
791 last week in June, across and around about and through the area.

Q. In what year?

A. Last week in June, 1917.

Q. Was your examination sufficient to enable you to observe the general conditions obtaining in this Mustinka watershed area?

A. Yes, sir.

Q. What is the natural discharge basin of this so-called watershed?

A. Through Lake Traverse and the Bois de Sioux river into Red river.

Q. What is the character of Lake Traverse?

A. It is a permanent lake, 25 square miles or somewhat greater area, 25 to 30 at different stages.

Q. Is it a deep or shallow lake?

A. I have never been on the lake myself.

Q. The outlet of Lake Traverse is the Bois de Sioux river?

A. Yes, sir.

Q. What is the character of the outlet in the vicinity, the general vicinity of the place where it leaves the lake?

A. From casual observation without wading into the rushes it appeared to be a shallow outlet, through rushes and cattails rather wide.

Q. Did you follow that channel from some point near White Rock down to what we term in this record the high bridge above Fairmount?

A. Yes, sir.

Q. What was the general character of the channel between those two points?

A. It becomes narrower as it goes down and the banks gradually develop so that at the high bridge, if I recollect right, I esti-
792 mated the height of the banks at about 3 feet.

Q. The flow of the water in that region is toward what direction?

A. To the north.

Q. The Bois de Sioux and Ottertail, I believe, join at Wahpeton and Breckenridge to make the Red River of the North?

A. Yes, sir.

Q. What is the mean level of the waters of Lake Traverse?

A. I have not myself run any levels to that point.

Q. So far as taking the mean level is concerned, may I assume you have taken the figures which you have heard testified to by Engineer Ralph?

A. Yes, sir.

Q. As 974?

A. Yes, sir.

Q. What is the general character of the land on either side of the Bois de Sioux channel, that is south of the high bridge? As to being high or prairie land?

A. It slopes up gradually from the river, the further north you go the more rapid the slope.

Q. And what if any is the general fall of the land in that area toward north or toward the south?

A. Each acre in general——

Q. We won't get so fine as that.

A. The valley drains north.

Q. And is the general slope of the land on either side of the valley toward the north?

A. The slope toward the river would be faster than the slope to the north.

Q. That was not my question, professor; I asked you if
793 the general slope of the land was toward the north.

A. The general slope of the valley is toward the north.

Q. Did you make any investigation of the area that is known in this record as the moraine zone?

A. No, except what can be seen from the train and what can be determined from the government contour maps.

Q. Did you make any investigation of the channel of the Mustinka river in the moraine zone so that you had an opportunity of observing that?

A. Only for a few miles above the Great Northern railway.

Q. You heard the testimony of Engineer Ralph to the effect that the Mustinka river has its source in the northern part of the moraine zone area, flows south and then flows in a general direction west

across the level prairie or a comparatively level prairie area, did you?

A. Yes, sir.

Q. Did you observe the character of the area where the Mustinka turns to the west and flows across the Great Northern right of way and thence westward?

A. Not at the turn but below from the Great Northern right of way down west of the Great Northern right of way.

Q. At the time you were on the ground were you able to observe the conditions, in part at least, of the old Mustinka channel in a natural state?

A. I noticed the old Mustinka channel at a considerable number of different points and made estimates or rough measurements of its capacity.

Q. In order that we may understand one another, the general area in which you made these observations was west of the Great Northern railway and between there and the, we will say, the western end of what we have called the cut-off.

A. From the Great Northern railway westward to Lake Traverse.

794 Q. You have heard the testimony in this case in which a certain area has been defined as the delta zone, have you not?

A. Yes, sir.

Q. Without for the present undertaking to define accurately the delta zone, I will assume for our immediate purposes, that we have reference to the channel of the Mustinka in its natural state from a point near the Great Northern crossing extending to the point where the present ditch construction intersects the main south and west branch of the Mustinka, do you understand me?

A. Yes, sir.

Q. What was the general character of the original Mustinka channel, as you observed it, in that area?

A. At some point- it was almost indistinguishable—a few inches to a foot deep and 10 or 20 yards wide; at other points 6 to 8 feet deep and 100 feet wide.

Q. Where with reference to the east or westerly part of the area which I have just described was the channel most poorly defined?

A. The point where it was most poorly defined——

Q. I don't care, professor, to get down to any particularly fine point on the map, if you tell me whether it is easterly or westerly.

A. About the middle of the area.

Q. And what was the general character, as you observed it, of the surrounding territory, was it hilly or flat?

A. Approximately level, with slight irregularities.

Q. And that generally level character extended throughout this area?

A Throughout the area in every part that I visited.

Q. Did you observe the channels of what is known as the Five Mile creek and Twelve Mile creek?

A. Not in so much detail.

795 Q. But you did observe them?

A. Yes, sir.

Q. And what with reference to the character of the land in the vicinity of those two channels?

A. The character of the land at a general view appeared to be the same.

Q. Having regard to your observations in that area, what would you say as to its character with reference to accommodating the flow of flood waters in the spring and other times of excessive precipitation?

A. The channels were very inadequate.

Q. And what would be the effect of that?

A. Overflowing the surrounding lands.

Q. What was the outlet for that overflow in a state of nature?

A. Unless it had outlet at some point that I did not visit it would have—it would mostly have outletted or overflowed where the Mustinka channel is.

Q. Will you answer the question, professor, what was the outlet for those overflow waters?

A. I hesitate to answer that because I never saw it in a state of nature.

Q. Did you observe the Mustinka channel?

A. Yes, sir.

Q. Did you observe any other channels?

A. I did not.

Q. Did you hear the testimony of the other witnesses that the Mustinka channel was the outlet of those waters?

A. Yes, sir.

Q. Have you any reason to doubt that that is a fact?

A. No, sir.

Q. You stated that you followed the Mustinka channel from this level area in here at the point of confluence which we
796 have described down into Lake Traverse?

A. Yes, sir.

Q. And what will you say as to that being the course of the waters from that overflow area in a state of nature, so far as you observed, of course?

A. That the water from the overflow area after passing the outlet must necessarily then have followed the Mustinka channel or near to it.

Q. Did you observe there on the ground, what is known as the original state ditch?

A. Yes, sir.

Q. That was constructed between what points, approximately?

A. Approximately from the Great Northern Railway to the confluence with Twelve Mile creek.

Q. Were you able to observe the character of the natural channel of the Mustinka river in the area covered by this ditch?

A. This was the part, the section of the channel where it was impossible, it was almost necessary to get out a search warrant to find it, it was so slight.

Q. What will you say as to whether it was straight or crooked the natural channel I mean?

A. So far as anyone could find it it was very crooked but there was so little of it that it was hard to hunt it up.

Q. Having regard to the conditions of that natural channel, as you observed it, what will you say as to its capacity for handling the accumulated waters in that area in times of flood or excessive precipitation.

A. Its capacity was scarcely more than zero.

Q. Did the original ditch in that section make any pretense of following the old river channel?

797 A. The original ditch was nearly or quite on a bee-line.

Q. I assume you did not make any measurements accurate measurements, of this original ditch yourself?

A. No, sir.

Q. Did you observe the character of the original ditch with reference to its dimensions sufficient to tell us as to its comparative capacity for handling the flood waters as compared or contrasted with the original channel?

A. It would carry ten or a hundred times as much water.

Q. Which?

A. Nearer one hundred.

Q. Which would?

A. The ditch than the original channel. The original channel being almost indistinguishable the water would be spread in a thin stream over a comparatively wide area.

Q. Speaking generally, professor, and having regard to an area of the character such as that with which we are dealing, what is the effect, so far as drainage is concerned, of the construction of such a ditch as this?

A. It prevents the water from territory above from overflowing the land and it removes from the land water that already has fallen on it from the clouds.

Q. Is there a tendency to accelerate the flow or not?

A. It brings to its outlet water much more quickly than it would come without the ditch.

Q. And what with reference to volume of flow, or is that determined by capacity?

A. The total volume brought to the outlet of the ditch is greater than the volume that would come to the same point of outlet if it stood for weeks or months on the land and evaporated.

Q. Did you observe the character of the construction which is known in this record as the extension, that is, the later

798 state ditch?

A. I noticed that more particularly than the original ditch.

Q. Did you make any measurements of that with reference to the turning capacity or did you take the figures and cross-sections of Mr. Ralph?

A. Several rough measurements with tape and hand level.

Q. At this upper point, that is, at the point where it connects with the original ditch, what was its approximate area?

A. At what part of the cut-off?

Q. At the point where it connects with the old ditch?

A. I made no measurement of that point.

Q. Where did you make a measurement, if at all, professor?

A. One point was at the bridge near the Swede church, I think it is called.

Q. Where is that?

A. At or near the northwest corner of Section 24, Township 128, Range 46.

Q. And the result of that measurement was approximately what?

A. Bottom width, 25 feet, top width, 40 feet, depth 11 or 12 feet.

Q. Did you examine the character of the old Mustinka channel in the general area of this cut-off—and you understand what I mean by the cut-off is connecting with the old ditch, and extending across the point where the natural Mustinka river flows to the north in the loop intersecting that loop on the west?

A. I noticed that channel at half a dozen points or more on the loop.

799 Q. And what will you say with respect to the capacity of the new or artificial channel as compared with the channel of the original river?

A. If the original channel was not obstructed at any points, in other words, if at all points it had as great capacity as at the points I noticed the capacity of the new channel, I would estimate it as from one and a half to twice that of the original channel. If the original channel was obstructed at any point that I did not happen to visit that then would be greater.

Q. Would the contour of the channel or the tortuous character of the channel constitute such an obstruction?

A. The length of the channel is something more than three times the length of the cut-off, and it turns, as estimated from one of these maps——

Q. 'One of these maps' isn't particularly definite.

A. Well, from Defendant's Exhibit 4; the turns in the main channel would aggregate 6 to 8 right angles per miles. This might obstruct the flow in the original channel still more but in a rapid stream turns are a very considerable obstruction. In a sluggish stream a turn does not to so great an extent reduce the flow, reduce the velocity.

Q. Having regard, professor, to the conditions in this so-called area, which I have referred to as the delta zone, what would be the effect of that area on the discharge of the flood waters or waters in times of excessive precipitation into Lake Traverse, that is, in a state of nature?

A. Water falling on or especially flowing into any such approximately level area, if the channel capacity is insufficient to carry it through and away, necessarily overflows or spreads out very much, with the result that a part of the water evaporates or is lost by transpiration and seepage and never reaches the channel again,

800 and the part that does get again to the channel trickles in gradually off the level lands so that the crest of the flood is spread out through many days, weeks or months.

Q. Is it or isn't it your opinion that in a state of nature this area that we have been speaking of had that effect on the waters coming to that point of confluence?

A. It must necessarily have had that effect.

Q. What was the effect on that condition of the artificial construction put in by the State of Minnesota, that is, this Mustinka state ditch?

A. It would prevent the overflow of the lands in this area and would permit of the water reaching the area to pass on and to pass on in a short time; the water would go down the river in bunches instead of in a gradual equalized flow.

Q. And what would be the effect of that on the time within which those waters would reach their outlet in Lake Traverse?

A. They would reach the outlet in Lake Traverse in a very much shorter time.

Q. And as to the volume?

A. The total volume would be considerably more and it would be concentrated in a much shorter time.

Q. Considering the natural formation with which we are dealing what would be the relation of Lake Traverse to the area in the Bois de Sioux Valley to the north?

A. This would act as an equalizing reservoir for floods entering it, so that the discharge in the Bois de Sioux Valley would be more steady.

Q. Did you hear the testimony of what we have termed the non-expert witnesses in regard to the conditions in the Bois de Sioux valley in 1915 and 1916?

A. No, sir.

801 Q. It has been testified in substance in this case that in 1914, late in the fall, and by late in the fall as described by the witnesses they meant after the plowing season, there was a very considerable rise in the waters of the Bois de Sioux valley in the region in question, overflowing to some extent the lands along the valley. In May, 1915, or thereabouts, the Bois de Sioux river rose again, flooding the lands on the Dakota side of the valley to an area approximately as indicated in the shaded portion in yellow on Complainant's Exhibit 1; this flooded condition reached its crest about the 20th of July, 1915, thereafter gradually receding until substantially one-half of the inundated area was uncovered, but all of the lands remaining wet. The waters froze up on the lands that fall, that is, the fall of 1915. In the spring of 1916 the Bois de Sioux flooded its banks again, the crest of the flood coming, so far as Lake Traverse is concerned, the early part of April and the crest in the valley coming some time in July, the latter part of July or the early part of August, the lands continuing to be inundated until comparatively late in that fall. It was also testified by the witnesses that under natural conditions and covering a period varying in the testimany of the different witnesses from fifteen to twenty some years, no such condition of flooding had ever before been experienced but that in all instances where there was an overflow in the valley the duration of that overflow had not extended beyond a period from

three to eighty days when the water receded, and those overflows coming I think it was testified in the spring break-ups. Now, assuming that state of facts to be as I have stated and the conditions as you have observed them and have testified here on the stand, are you able to form an opinion as to the cause of the overflow conditions in the fall of 1914 and the succeeding years of 1915 and 1916? Answer yes or no.

A. Yes.

802 Q. Professor, to avoid any confusion, the area to which I have referred as being overflowed in the State of North Dakota and to which you were referring in answer to my question is the area shaded in yellow on Complainant's Exhibit 1, in the valley of the river which is the outlet of Lake Traverse, whether that river be called by the witnesses the Bois de Sioux or the Red River of the North.

A. Yes, sir.

Q. What is your opinion on that subject?

Mr. Palmer: Objected to as not calling for an opinion based upon a correct statement of the testimony and not assuming all the testimony heretofore given to be true.

A. My opinion is that the flooding of the lands resulted from the construction of the original state ditch and the extension in 1911 which afforded it an outlet and the rectification of the river channel which improved the outlet.

Q. In order that we may not inject any confusion into the record, what do you mean by the rectification of the river channel?

A. The dredging, enlargement and straightening of the river channel from the lower end of what has been termed the cut-off to Lake Traverse.

Q. In other words you refer to the Mustinka state ditch?

A. Yes, sir, the Mustinka state ditch.

Q. And by the ditch construction which you refer to, the other ditch construction which you refer to in your answer, you refer to the ditching in this general area that you have described at the confluence which you observed on the ground?

A. Yes, sir.

Q. What is your opinion, having regard to conditions as they already have been mentioned and as you have already testified,

803 as to the future effect of the maintenance of these artificial conditions on the flood conditions of the Bois de Sioux valley?

A. After sudden storms or in any extremely wet season the quantity of flow and the height of the river will be greater than, during parts of the season, than would have been the case in a state of nature, with the result that it will frequently happen that the river will overflow its banks and flood the surrounding lands, when this would not have occurred in a state of nature.

Q. And as to the time during which those floods will continue?

A. The length of the floods, after the water is once out of its channel flooding lands, will depend on how long the supply to Lake Traverse is continued excessive.

Q. And will it also depend somewhat on the stage to which this run-off raises the waters of Lake Traverse?

A. The higher Lake Traverse is the greater the discharge and therefore the more the flood below.

Q. Have you made any calculations with respect to precipitation covering this area, professor?

A. I have gone through with reasonable care the precipitation records have all the adjacent stations for about 15 years as published by the United States Weather Bureau.

Q. What will you say, as a result of those investigations, as to whether conditions of precipitation, take, for instance, in the year 1916, were different or essentially different from those which have existed at previous periods?

A. The season was—the year was a wet year but not abnormally wet. It frequently happens, in every period of ten or twenty years there are several years of that same class.

Q. Will you enumerate what years you put in that same class?

A. 1912, 1908, 1905.

Q. And on what records have your comparisons been
804 based, that is, what stations?

A. Beardsley, Minnesota; Campbell, Minnesota; Fergus Falls, Minnesota; Morris, Minnesota; Wheaton, Minnesota; Ashby, Minnesota; Alexandria, Minnesota; Millbank, South Dakota; Roslin, South Dakota; and Britton, South Dakota, except that for one or two years I was unable to obtain the records from the last two stations.

Q. Taking the five months from May to September in 1905, how did the precipitation as you have computed it, compare with the same months in 1916?

Mr. Palmer: That is objected to as entirely immaterial.

A. The five months in 1916 precipitation was 20.5 inches, taking what might be called the weighted mean, including each one in proportion to its distance from the area in question, and for 1905, 19 inches.

Mr. Boutelle:

Q. How about 1908 as compared with 1916?

A. Those same months, May to September, 18.4 inches.

Q. And in 1912?

A. 19.3 inches.

Q. What do your records of precipitation in 1915 for the five months, May to September, show?

A. 20.6 inches. These records, I might mention, are approximately the same as those submitted by one of the previous witnesses in a blue-print but are slightly modified because of the adding of more stations.

Q. What do you say it was in 1908?

A. 18.4 inches.

Q. And 1912?

A. 19.3 inches.

Q. Now, Professor Chandler, in figuring on what you term the flood phenomenon, do you ordinarily take into consideration as long periods as four or five months?

805 A. For water power work or reservoirs——

Q. I am not asking about water power work or reservoirs, I am asking about floods.

A. I was explaining why I want to answer——

Q. I don't want an explanation, I want your answer.

A. No.

Q. Speaking broadly, what is the occasion of the flood condition?

A. Excessive precipitation through a short period that comes into the stream channel suddenly before the channel has time to carry it away.

Q. Having regard to the physical conditions, the conditions of topography in the area with which we are dealing, what with respect to the time of precipitation would you look for as productive of a flood condition?

A. From ten days to a month.

Q. Have you the comparative computations on that basis of 1915 and 1916 with previous years?

A. I have records here for a single month, for two month periods and for five day periods.

Q. Then suppose we take the five day period first; what was the highest five day precipitation in 1916?

A. August 19 to 22, 3.2 inches.

Q. And the next time?

A. June 28 and 29, 2.5 inches.

Q. Now, was there any other five day period in 1916 which had as high as 2 inches of precipitation?

A. I believe that I found one with precisely 2 inches, no other above 2 inches.

Q. When was that, if you recall?

A. I don't recall although I can find it by some search.

806 Q. Now, take 1915.

A. The only period, the only storm in 1915 that I was able to find, I made quite a careful search, was June 26 to 28, 2.3 inches.

Q. And was there any other period, five day period in 1915, having as much as 2 inches?

A. No, sir.

Q. In the entire year?

A. No, sir, unless possibly that is the one I recollect of 2 inches that I didn't take the time to finish computing.

Q. Will you take your computations, taking the 30 day periods for comparison; what was the highest 30 day period precipitation in 1915?

A. In June, 7.4 inches.

Q. How about July?

A. It wasn't high enough to attract my notice, I didn't figure it.

Q. How about May?

A. Nothing astonishing, I didn't compute it, I haven't the computation here.

Q. Do I understand you, that the highest 30 day precipitation in 1915 was in June, 7 inches?

A. 7.4 inches.

Q. Are you able to tell me the maximum beyond which no other month in 1915 went?

A. Approximately not exceeding 4 inches.

Q. Now, take the year 1905.

A. May, about 5.9 inches.

Q. Take 1908.

A. June, 8.2 inches.

Q. How about May?

A. 5.3.

807 Q. How about July?

A. Not high.

Q. Will you take for the purposes of comparison a period of two successive months; take 1915, first.

A. June and July, 1915, total 11.5 inches.

Q. 1916.

A. July and August totaled 8.6 inches.

Q. What years do you compare with those?

A. 1912, July and August, 9.4. 1908, May and June, 12.9 inches. 1906, July and August, 9.6 inches. 1905, May and June, 10.5 inches. 1904, June and July, about 8.9 inches; the records are incomplete there.

Q. And how about 1897?

A. 1897, May and June, 12.2 inches.

Q. Take your highest precipitation for one month, taking the high months of the previous years, how about May, 1905?

A. May, 1905, about 5.9 inches.

Q. How about May, 1906?

A. About 5.4 inches.

Q. How about June, 1908?

A. 8.2 inches.

Q. About about 1909, May?

A. I haven't it figured in detail. I could estimate it from the blue-print, I haven't taken any other station for that.

Q. How about July, 1912?

A. About 5.5 inches.

Q. And how about June, 1914?

A. 10.4 inches.

Q. What was the highest single month precipitation in either of the year- 1915 and 1916?

808 A. June, 1915, 7.4.

Q. And aside from June, 1915, was there any other month in that year that had a precipitation in excess of 4½ inches?

A. No month with a precipitation in excess of about 4 inches, no other month.

Q. What was the highest month's precipitation for the entire year in 1916?

A. August, 5 inches.
Q. June?
A. June, 4.6 inches.
Q. Was there any other single month in 1916 that exceeded 4 inches or thereabouts?
A. May, 4.5 inches.
Q. Any other?
A. No, sir.
Q. As far as your computations and investigations of this matter are concerned, was there anything in the three or four months preceding the floods of 1915 and 1916 to distinguish those years with respect to flood conditions from the previous years to which your attention has been called?
A. No, sir.
Q. How did the precipitation in 1915 and 1916, taking it in its entirety, compare with those previous years, that is, 1905, 1908 and 1912?
A. I haven't the year, the precipitation for the year, figured out in detail because that is too long a period so I didn't consider it.
Q. And why do you not consider, professor, in reckoning on those flood conditions, averages extended over a long period of time?
A. The capacity of the channels even as inadequate as they are, are abundant for greater run-off than at present occurs if it
809 is distributed smoothly through the year, but if the precipitation comes or if the flow off of the surface, the surface outflow comes in a short period it surcharges the channel for a time.
Q. And that is the condition that is productive of those flood results?
A. Yes, sir.
Q. It has been suggested by various of the questions that have been asked in this case by the defendant that 1916 was an unusual flood year in this territory, is that a fact?
A. By this territory you mean what territory, Mustinka drainage?
Q. Well, I suppose you understood my question as I have only asked you in regard to the Mustinka watershed, I want to confine it to that.
A. Most of the tributaries of the Red River, although not all of them, had reasonable heavy flow but the floods were not abnormal as compared with numerous years before.
Q. Such as what?
A. 1907, 1906, 1904, 1897.
Q. Taking, professor, the winter months of 1914 and 1915, November to March, inclusive, what was the aggregate precipitation as compared with the normal?
A. 1914 and 1915 was slightly less than the normal for the five winter months.
Q. And for the winter months, November to March, of 1915 and 1916, what was it?
A. About an inch and a half above the normal.
Q. Assuming the conditions of precipitation for the winter

months of 1914 and 1915 with no artificial conditions obtaining in that area, would you expect a flood in the spring or summer of 1915 in this Bois de Sioux valley?

810 A. Nothing in these conditions to give reason to expect any unusual flood.

Q. Taking the conditions of precipitation of the winter of 1915 and 1916, in the absence of any artificial conditions, would you have looked for floods in the Bois de Sioux valley?

A. Nothing in the precipitation records to give reason to expect any unusual flood.

Q. By an unusual flood, what do you mean?

A. We derive the normal or average year by averaging all the records, including the wet years and the dry years. I very rarely see an average year, they are usually either wet years or dry years——

Mr. Boutelle: Strike out the answer and read the question.

(Question is read).

A. The usual high stages or wet years are the kind such as occur several times in every ten years.

Q. And what with reference to the duration of those floods in the area in question?

A. Well, all floods are unusual; I don't expect an overflow of the land unless the precipitation is abnormally great.

Q. Let me go back and ask my question again. Assuming the conditions of precipitation in 1915 and 1916, the winter months as you have already testified, with no artificial conditions, with no other than the natural conditions, would you have looked for a flooding of the lands in the Bois de Sioux valley in the spring or summer of 1916?

A. None whatsoever.

Q. Taking the precipitation as you have given it to me from the records through the winter months of 1914 and the summer

811 months of that same year, would you have looked for any flooding of the lands in the Bois de Sioux valley?

A. None whatsoever.

Q. I asked you, professor, a few moments ago as to the highest five day precipitation in 1915 and 1916, but I omitted to ask you in regard to comparative data in previous years; have you any such years?

A. In 1908, June 5 to 9, 2.5 inches; in 1905, July 3 to 6, 2.2 inches. In 1905, May 9 to 12, 3.9 inches.

Q. How about 1914?

A. In 1914, October 7 to 10, 2.2 inches, September 12 to 14, 2.2 inches, June 23 to 27, 4.4 inches.

Q. Then if I understand you correctly, professor, based upon all of the records and data to which your attention has been called, there is nothing in your opinion in the natural conditions and the precipitation to which you have testified which would account for 1914 and 1915 and 1916?

A. No, sir.

Cross-examination.

By Mr. Palmer:

Q. For what purpose have you given this comparative data on precipitation?

A. In order to ascertain whether the flooding of lands in the Bois de Sioux valley was due to abnormal or unusually great rainfall or to storms.

Q. In what manner does this comparative data that you gave given tend to establish that proposition?

A. Because I was unable to find that the rainfall of that year——

Q. Of what year?

A. Of these years, 1914 to 1916, was markedly greater
812 in its amount and in sudden storms than other previous years, and many other previous years.

Q. That is, you conclude that if in some year in which this ditch construction did not exist we find as great a rainfall as we find at certain periods in 1915 and 1916 and there was no flooding of the lands in the Bois de Sioux valley, that this ditch construction was responsible for it in the years 1915 and 1916?

A. Presumably so.

Q. And among those data you give the month of June, 1914?

A. Yes, sir.

Q. What was the rainfall that month?

A. 10.4 inches.

Q. In what other year did the rainfall in the month of June attain so high a figure as that?

A. I didn't find any other year in which it attained so high a figure at all the stations taken into consideration.

Q. June, 1914, then exceeded in precipitation any other month of June so far as any of your records accessible show?

A. Yes, sir.

Q. And how nearly was that precipitation of 10.4 approached in any other year in the month of June?

A. June, 1908; 8.2.

Q. In June, 1908, there was a precipitation of 8.2; there was at that time no flooding of the lands in the Bois de Sioux valley according to your understanding nor did this ditch construction exist?

A. So I understand.

Q. From that you would draw the inference that the excessive rainfall in 1915 and 1916 does not account for the flooding of lands in the Bois de Sioux valley, and you account for it by this
813 ditch construction?

A. Yes, sir.

Q. I understand you to say that the chief danger from this ditch construction is that in times of heavy precipitation in a short period of time, such as thirty days, there will be a serious menace to these lands in the Bois de Sioux valley?

A. Yes, sir.

Q. And the greater the precipitation within a short period of time, the greater will be that flood in the Bois de Sioux valley?

A. Other conditions being the same, yes.

Q. You mean by that, that if there is danger of flooding there is danger of flooding, Professor Chandler, is that what you mean?

A. No; other conditions being the same as regards saturation of the soil and the topography conditions unchanged, then the greater the rainfall the greater the danger of flooding.

Q. I thought you were accounting for it on the basis of this ditch. Now, let's see what you think we have got to have besides the ditch to have any danger of flooding.

A. We would never have a flood in a dry year.

Q. What do you mean by a dry year, a time when there is no flood?

A. No, if there is no rainfall whatsoever there would be no rivers after the ground is dried out.

Q. I thought it didn't make any difference about rainfall, the ditch did the business. Then the precipitation is the great factor to take into consideration, isn't it?

A. It is the original factor, the first factor; it may or it may not be carried into the river.

Q. You have brought these precipitation data in here to
814 establish the responsibility of this flooding upon this ditch construction, and you did it because it is the great factor, the predominant factor and indispensible factor to take into consideration?

A. Yes, sir; it is the first condition, there must be rain before there can be water in the streams.

Q. Now, I understand you to say that the danger of flooding is accentuated by a heavy precipitation in a short period of time, such as thirty days, and for that reason you do not take into consideration and say that you should not take into consideration the annual precipitation because that is too long a period?

A. Yes, sir.

Q. With this ditch construction in existence and the precipitation in one month of 10.4 inches there is bound to be flooding of lands in the Bois de Sioux valley?

A. Not necessarily but a much better bet there will be.

Q. It would be a pretty safe bet, Professor Chandler?

A. Yes, sir, unless the soil was in such shape as to take up rainfall and to hold it.

Q. What do you mean by that?

A. The plowed field will, if it is plowed deeply and harrowed, will take up three or four inches of rain and hold it for evaporation. Ground that is frozen on top until it is water-tight can hardly take up anything, so that there are various other conditions which can come in, so that in any single month anyone is getting on very unsafe ground if they attempt to predict floods with certainty.

Q. I want to know, if that is true, why you select out a certain month and a certain period of two months in certain years to base your conclusion on?

A. As comparing the wettest month or two months of the years
815 1914, 1915 and 1916 with the records of the previous years in order to find whether there had been cloudbursts or extreme storms through the year that the flooding occurred.

Q. Wouldn't you call 10.4 inches of rainfall in a month some precipitation?

A. It was a wet month but it wouldn't be like 10.4 inches in a day, such as occurred up in Bowley and Bagley in 1909, that caused a flood.

Q. Will you kindly tell me the rainfall for the month of May, 1914?

A. Approximately 2 inches.

Q. Was that heavy or light?

A. Very light.

Q. 2 inches a month?

A. Yes, sir.

Q. Very light?

A. Yes, sir.

Q. I thought you gave it in several of these months as very heavy?

A. 2 inches as heavy for a single month?

Q. Yes.

A. No, I don't think so. Those 2 inches were for 5 day periods.

Q. What was the average for May?

A. The average for May is about 3 inches and a fraction, 3½.

Q. What was it April, 1914?

A. April, 1914, about 3 inches.

Q. Was that normal?

A. That was about ¾ inch above normal.

Q. What was it in March?

A. For March, about 1½ inches.

816 Q. Was that normal, or less than normal?

A. About half an inch more than normal for March.

Q. What was the precipitation for February?

A. About half an inch.

Q. Was that normal?

A. Just about exactly.

Q. What was it for January?

A. .4 inches.

Q. Was that normal?

A. .2 below normal.

Q. What was it for December, 1913?

A. A trâct, most of the stations had no precipitation or only trace, that is, less than .1 of an inch.

Q. Was that about normal?

A. About .6 of an inch less than normal.

Q. What was it for November?

A. About .4 inch.

Q. Was that normal?

A. .4 inch less than normal.

Q. It was about .4 of an inch all of the month, do you mean?

A. .8 is the normal for November.

Q. What was it in October?

A. 3 inches.

Q. Was that normal or less than normal?

A. An inch and a quarter more than normal.

Q. What was it for September, 1913?

A. 2½ inches.

Q. Was that normal?
A. A third of an inch more than normal. These that I am giving are from these blue-prints which do not include all the
817 stations but it would be approximately the same.
Q. Would you say it was a normal year, take it down to June 1st?
A. Yes, sir.
Q. You would have your watershed in a fair condition of saturation?
A. Yes, sir.
Q. What other conditions have you got to have aside from saturation or saturated watershed to get a flood in the Bois de Sioux with a rainfall of 10.4 inches in a month?
A. The height of the water in Lake Traverse; if Lake Traverse was low it could receive a large amount of water and let it out gradually.
Q. That is true yet, isn't it; is that not true yet?
A. By yet you mean when?
Q. Now, this minute?
A. I suppose so.
Q. It is fair to assume, from the fact that it was a year of normal precipitation preceding June, 1914, that Lake Traverse was at its normal mean level the first of June, 1914?
A. Yes, sir.
Q. What else have you got to have? You have got to have a saturated watershed and you have got to have Lake Traverse at its mean normal level; those two conditions we assumed. What else have you got to have?
A. The distribution of the storm, whether it comes all in one day or is scattered out in small showers.
Q. How was it in June, 1914?
A. I don't know.
Q. You have given it here, you have given us some figures.
A. I have given the total, I haven't the daily records.
818 Q. You have given us some of the daily records; refer to them, please.
A. June, 4.4 inches in June 23 to 27.
Q. That was some storms, wasn't it?
A. Fair.
Q. How much do you say it was?
A. 4.4 inches.
Q. In how long a time?
A. 5 day period.
Q. That is just an ordinary storm?
A. No, but it is a heavy rain.
Q. That is some concentration of the precipitation and it is an unusual concentration of the precipitation, Professor Chandler?
A. Yes, sir, rather unusual.
Q. Biggest it has ever been in the month of June for that corresponding period?
A. So far as our records show, yes, sir.
Q. What else have you got to have? You have got to have your

rainfall concentrated and you have got that; you have got to have Lake Traverse at its normal level and you have got that; you have got to have a saturated watershed and you have got that; what else have you got to have?

A. Those are the main factors.

Q. Are those all you want to consider?

A. Off-hand I don't recollect any other factors that we ordinarily consider.

Q. Then all of these factors given and this ditch construction in existence, according to your opinion and theory you are bound to have a flood in the Bois de Sioux valley?

A. Not bound to have but could expect to have.

819 Q. And that is what you assume when you say that there will be a recurrence of these floods?

A. Yes, sir, not that they will occur every time when the conditions are favorable but the probabilities are there.

Q. And the probabilities are that if all of those factors exist in the future and there will be a rainfall of 10.4 inches in one month, you are going to have flooding of the lands in the Bois de Sioux valley?

A. In most cases, usually, under such conditions.

Q. What will prevent this inevitable, axiomatic (as Professor Shenehon calls it) flooding of the land in the Bois de Sioux valley under those conditions?

A. That is, if the country is thoroughly ditched, you mean, if the ditch is still open? If the ditch is open I don't see anything to prevent it.

Q. You are talking about this Mustinka state ditch, aren't you, Professor Chandler?

A. Yes, sir.

Q. You are not talking about anything else, are you?

A. The question is, in a state of nature or with the ditch?

Q. With the ditch.

A. Yes, sir, I would expect a flood.

Q. And you can't think of anything that would save those lands down there from a flood under those conditions?

A. If there was no detaining basins, no.

Q. Well, are you assuming that there are any detaining basins left there after this ditch was constructed?

A. Lake Traverse.

Q. Well, do you think Lake Traverse will save it if it is at a normal level?

820 A. If it is at a normal level, Lake Traverse can rise a foot and the outflow from it at that height will not be more than the Boise de Sioux channel can carry away without flooding the lands.

Q. Then Lake Traverse can rise a foot above its normal level without endangering these lands in the Bois de Sioux valley?

A. Yes, sir, if the inflow into Lake Traverse stops when the lake comes up that high.

Q. Well now, do you think with Lake Traverse at a normal level, saturated watershed, this ditch in existence and a rainfall of 10.4

inches in one month that it will raise it above a foot and endanger these lands?

A. I will have to compute and make an estimate of the amount of that 10 inches that will run into the lake and how long it will take to run in.

Q. Go ahead and tell me how much it would take to raise it above a foot.

A. I should estimate that if 10 inches of rainfall occurred in a month, about an inch and a half of it would pass into the lake under ordinary conditions——

Q. With this ditch construction, you mean?

A. Under ordinary conditions in that month it would be enough if there was no overflow from the lake meanwhile to raise the lake about 3 feet, but meanwhile, instead of flowing in in one mass it comes down gradually through some days or weeks and meanwhile there is a discharge from the lake all the time so that the lake in a state of nature would probably be raised not more than a fraction of a foot, but if the discharge into the lake is facilitated by the ditch it might be that 2 to 3 inches would pass into the lake in that month. That would be enough, except for overflow, the fact that the lake is larger as it overflows, that would be enough to raise the lake
821 5 or 6 feet if it could be held without any water escaping from the lake. If that whole amount came into the lake in one day, raising the lake 5 or six feet, the lands below would of course, be overflowed the next day. If it came in extending through a month I can estimate quite closely the effect on the Bois de Sioux river, in a moment——

Q. I asked you to assume its coming in through this ditch instead of in a state of nature?

A. Yes. 3 inches coming into the lake from the whole drainage area in a month would—if 3 inches came in in one month, it would flood the lands to approximately the height of 1916 more or less, perhaps not as much by a foot, perhaps a little more.

Q. Coming in through this ditch?

A. No, if 3 inches off the whole drainage area came into the lake in a month.

Q. Three inches off the whole drainage area would get into the lake with this ditch there and given a month with rainfall of 10.4 inches?

A. Three inches in a month in the Red river valley has previously been an unknown record there I think, a two inch maximum for a month is what we consider almost abnormal.

Q. How much do you think would come in in the month if this ditch were there and you had a saturated watershed and rainfall of 10.4 inches, I am asking you.

A. Three inches off the watershed.

Q. And that would raise the lake how much with the outflow that the Bois de Sioux permits?

A. At the high bridge to a height of 967 or thereabouts.

Q. What would that do to the lands below or the lands in the Bois de Sioux valley?

A. Flood the lands.

822 Q. Just as seriously as they were in 1916?

A. More or less, yes, sir. Comparable with that, it raised to 967½ in 1916.

Q. And you had this how much?

A. Probably 967 or thereabouts.

Q. Substantially the same amount of flooding that we had in 1916?

A. If 3 inches ran off the whole watershed in one month it is.

Q. Now, Professor Chandler, if this ditch was there in June, 1914, and there wasn't any flooding of the lands in the Bois de Sioux valley and there was these other conditions which you have assumed, Lake Traverse at its normal height and the saturated watershed, your theory fails, doesn't it?

A. No theory for predicting weather is expected to hold in every case.

Q. I don't want you to predict weather, I want you to tell about predicting floods?

A. A flood is the result of the weather, a run-off is like weather in involving a great number of factors which can not be measured, which have not been entirely investigated, and even in the case of the weather bureau with their predictions of storms, they are not always correct. Run-off is much more complex even than the prediction of rains and winds and storms and hot and cold weather.

Q. Then the truth is, the secret of the whole thing is, that your prediction of a recurrence of these floods is all guesswork, isn't it?

A. In the same way that the predictions of the weather bureau of cold waves coming are all guesswork.

Q. Well, if we had these conditions and had this ditch and there wasn't any flood, don't you care to consider that at all?

823 A. Yes, sir, that is the time when the weather bureau missed its guess, or the river flood predicter missed his guess.

Q. In other words, Professor Chandler missed his guess?

A. Yes, sir. There is an involved factor but the other factors are enough so that the predictions are in some cases upset but the probabilities with the tendency in that direction, the probabilities must be reckoned with.

Q. What is the reason they didn't have a flood there in the early spring of 1917?

A. Not enough precipitation during the winter to necessitate a flood.

Q. Was there a normal precipitation through the winter up to March 1st from November 1st?

A. From November to March?

Q. Or April, November to April?

A. From November 1st to April 1st, about 4½ inches.

Q. I asked you whether that was normal or not.

A. About ½ inch above normal, ½ to 2/3 inches above normal.

Q. What was the condition preceding that in 1916?

A. From November 1st to April 1st?

Q. Running backward through 1916.

Mr. Boutelle: You are taking now from November, 1915, to March 1st or April 1st?

Mr. Palmer:

Q. Take back from November 1st to March 1st, 1916, run to March 1st and tell me that.

A. The spring flood doesn't occur until after the March precipitation, most usually until after the March precipitation has taken place.

Q. Take April 1st and tell me about that precipitation.

A. From November 1st, 1915, to April 1st, 1916, about 1.7 inches excess.

824 Q. I didn't want that. I wanted you to go back in 1916 from November 1st.

A. 1915, to April 1st, 1916?

Q. No, I don't care anything about that. I want you to take from November 1st, 1916, and go backwards to March 1st.

A. About 3.7 inches excess or thereabouts.

Q. Some saturation of the watershed would result from that surely to November 1st?

A. Unless it had already run off. There was a deficiency in October of an inch nearly an inch and a half.

Q. You think Lake Traverse was pretty low in the spring of 1917?

A. Without hearing any records about it I should expect it would have been down to normal.

Q. If it was down to normal and the rainfall was above normal for the winter months, November 1st to April 1st, would you look for flooding of lands in the Bois de Sioux valley with the watershed saturated?

A. Not if the rainfall was only two-thirds of an inch above normal.

Q. Then the upshot of this whole thing is, Professor Chandler, that to get such a flood as they had there in 1915 and 1916 you have got to have the same precipitation and the same conditions that they had in 1915 and 1916?

A. Or other equally effective conditions—yes, sir, in general the same precipitation and the same conditions.

Q. Do you take into consideration in your opinion as to the recurrence of these flood conditions the other ditches that have been constructed in this Mustinka watershed?

A. No, what I took into consideration was the discharge flowing in the season of 1916 down the Mustinka river and I didn't inquire where it came from.

Q. I understand you to say that one of the factors to be
825 considered in the absorption of water by the soil is the cultivation of the land and I take it also that you include in that an increased transpiration by reason of the increased growth of vegetation resulting from the cultivation of the lands, am I right?

A. Yes; that transpiration, however, from cultivated lands is not as great usually as evaporation from water surface,

Q. From water surface?

A. Yes, sir, but greater than evaporation from loose soil without vegetation on it.

Q. Would it be--how would it be with slough grass on it, prairie grass on it, ordinary prairie vegetation on it, as to transpiration, compared with what transpiration there would be from cultivated fields?

A. That is something from which I have never seen any very accurate or definite measurements. If the water in the soil was the same amount I would consider that the transpiration would be the same.

Q. Just the same from a field of corn as it would be from prairie sod with prairie grass on it, the amount of transpiration?

A. So far as I have ever seen any estimates, I wouldn't dare say that one or the other would be greater, having no data upon which to base that. The amount of transpiration depends somewhat on what the crop is, whether they are cactus or mangroves.

Q. I spoke about corn, did you understand me?

A. Yes, sir.

Q. You know what corn is?

A. Yes, but the exact measurement of its amount is still one of the things to be investigated in the next century, it has never been actually measured.

Q. If it has never been actually measured how do you know it is greater from corn than from cactus?

826 A. Because cactus will live where there is no water for the cactus to live to transpire.

Q. What about a field of wheat, would that be any greater than prairie grass in the matter of transpiration?

A. I wouldn't care to give any estimate.

Q. Then you think that as this so-called delta zone increases in settlement and in cultivation and the raising of crops, it will likewise increase in its power to absorb surface waters?

A. If they plow the soil deeply, yes, sir, in its power to absorb water, surface water, as compared with a well-drained stage such as at present they appear to have.

Q. A well-drained, well-cultivated soil tends, does it not, to reduce sudden run-offs instead of accelerating run-offs?

A. A. As compared with the same soil under the same conditions except not cultivated? Yes.

Q. Do you think that these lateral ditches, county, judicial and private, tend to increase the run-off from that delta zone, so-called delta zone?

Mr. Boutelle: We object to that as assuming something that does not appear in the record, private ditches.

A. The ditching system as a whole increases the run-off; I didn't stop to consider whether it was the back-bone or the ribs that did the work.

Mr. Palmer:

Q. The backbone wouldn't amount to much without the ribs?
A. The ribs wouldn't amount to much without the backbone there.
Q. No, it takes them both; you considered them both, did you?
A. I simply considered the outflow from the Mustinka state ditch without inquiring where it came from.

Q. And so far as you know, there may have been just
827 as great an outflow from that Mustinka river in a state of nature as you found there at the place you measured it?

A. It was impossible for the river to carry as much in a day or in a week as the ditch can carry, the capacity of the river was not sufficient.
Q. But so far as you know in a state of nature that same quantity of water might have come there to that point where you measured it?
A. Not in the channel of the river. So far as I know it might have come across the land but not in the same period cover the land because not being a good channel it could not have the same velocity.
Q. I want to know whether you took the ditches into consideration or whether you did not.
A. Which ditches?
Q. Any of them, when you measured this flow of water.
A. The outlet ditch? No, not in the measurement at Wheaton of the actual amount of water flowing near Wheaton, below the outlet of the delta zone.
Q. What do you mean by delta zone, where is it and what is it?
A. In general terms, the area colored light blue on Complainant's Exhibit 1.
Q. Did you ever go over that area?
A. Across it and along it five or six times.
Q. Did you ever determine the limits of it?
A. No, sir.
Q. Do you assume the testimony of Mr. Ralph to be true?
A. I didn't hear all his testimony; which items?
Q. Do you assume all of his testimony to be true?
A. I didn't hear it all.

Q. Do you assume his testimony in regard to this delta
828 zone to be true?

A. Which item in regard to it, I don't know as I heard it all of it.
Q. The extent of it, the character of it.
A. In general, yes, sir.
Q. You assume it to be true?
A. In general.
Q. That is what you base your opinion on?
A. I incline to think that he has made the area of the delta zone too small for extremely wet years.
Q. You show me or tell me what limits you put on the delta zone that is just what I asked you before.

A. In the general region colored blue in the map the old residents repeatedly mentioned that——

Q. I am not asking you for what old residents say, I am asking you what you determined from your observation of the delta zone what its limits are and on what you are basing your opinion here.

A. There is a much larger area than that, that is what might be called the flood plane, that bears the indications of occasional overflow.

Q. Where is that?

A. The blue area on the eastern and southeastern side of it.

Q. Now, we will take the southeastern side of it, there is a delta zone on which the water stands in a state of nature?

A. I was never there in the spring.

Q. What do you say it is a delta zone for if you never saw it?

A. From comparison with many other similar overflow areas that I have seen further down the Red river, where the water
829 comes from the higher land and in the spring spreads out for miles in a shallow sheet from a fraction of an inch to a few feet deep, with ridges holding it here and there, until it is ultimately drained off.

Q. And no provision made by nature for its drainage?

A. Very poor provision.

Q. Nature has made no provision for the southern and southeastern portions of this delta zone, has it?

A. I don't know, it seemed to be very imperfectly drained.

Q. Was there water on it when you saw it?

A. This was in June of a very dry year.

Q. How do you know, if you never saw any water on it, that it was imperfectly drained?

A. By the appearances, the channels seemed so small.

Q. What channels?

A. The occasional coulees or hollows in the prairie.

Q. How many coulees are there across those areas in the southeastern part of that delta zone?

A. I didn't count them.

Q. Is there one?

A. There were occasional hollows in the prairie, what we call coulees.

Q. Where were they?

A. I didn't make notes as to the location.

Q. How deep were they?

A. I don't remember.

Q. But aside from those coulees in the southeastern part of that delta zone, nature made no provision for its drainage?

A. A certain provision, there are those hollows and smaller streams from century to century scoured it deeper and deeper but it seemed to be a poorly drained country.

830 Q. There wasn't any water on it you say at all?

A. Nor anywhere else at the end of June, 1917; wasn't any in the Mustinka then.

Q. And that is all of the provision that you saw made by nature for the drainage of the southeastern portion of the delta zone, is it?

A. I remember crossing Five Mile creek at about the place, in Exhibit 1, at about the place that it enters the delta zone, marked on Complainant's Exhibit 1.

Q. Did you follow it down to its outlet?

A. I didn't follow it down.

Q. Did you see any other part of it except the part you saw there where it enters the delta zone?

A. I saw it at one or two places toward the outlet, but didn't make any measurements of it.

Q. How do you know then that it didn't carry that water and drain that land?

A. I don't know, it gave the impression of land that was overflowed occasionally, that is all.

Q. Had nature made any other provision to drain that delta zone, so-called?

A. The Mustinka river.

Q. Any other provision for the drainage of the southern part of it?

A. All the waters from that zone had to flow into the Mustinka river.

Q. It did?

A. Or part of it.

Q. How did it come there from the southern part of the delta zone?

A. Why, I presume along Twelve Mile creek.

Q. Nature has then provided Twelve Mile creek for the
831 drainage of that delta zone?

A. For carrying water from one part of the delta zone to another.

Q. Does it carry it?

A. I don't know.

Q. Did you see Twelve Mile creek?

A. At a few places.

Q. Where?

A. The only point that I can put my finger on is the point where the Wheaton-Herman road crosses it.

Q. What section is that on?

A. At the southeast corner of Section 18, Township 127, Range 45.

Q. What was its appearance at that point?

A. I don't remember very distinctly.

Q. Did you see it at any other point?

A. I think we crossed it with the auto going with reasonable speed at one or two other points.

Q. How did it look at those points?

A. I have no notes.

Q. Then, Professor Chandler, if you have no recollection about that Twelve Mile creek, likewise have no cross-sections of it, no measurements of it, know nothing about the slope of it or the velocity of the water in it or its carrying capacity, why do you undertake to say that it was inadequate to carry the water through that delta zone and overflow its banks?

A. Possibly Twelve Mile creek was adequate but the outlet below is not.

Q. Where was this outlet below?

A. Into the Mustinka river.

Q. Where?

A. At the upper end of the 1911 state ditch.

832 Q. At the upper end of the 1911 state ditch, that is, the beginning of the cut-off?

A. Yes, sir.

Q. There was the natural outlet of Twelve Mile creek into the Mustinka river?

A. Yes, sir.

Q. You examined those conditions there very closely?

A. The Mustinka river, yes, sir.

Q. Now, let me see, that would be, taking your map there and referring to it, at the northeast corner of Section 19, in Township 128, of Range 45?

A. Yes, sir.

Q. That is where Twelve Mile creek flowed into the original Mustinka river?

A. No, that is where Twelve Mile creek flows into the cut-off ditch. It flowed into the original Mustinka river, according to the map, at about the center of Section 7, Township 128, Range 45.

Q. What you really mean, Professor Chandler is, this, that the old Mustinka biver channel flowed into the Twelve Mile creek at that point, don't you?

A. No, I supposed that the water from Twelve Mile creek ran into the Mustinka river, not that the Mustinka outletted into Twelve Mile creek.

Q. Did you examine the conditions there at the point of that confluence?

A. Not right at the confluence but below there where the water must have passed.

Q. Did you examine at the confluence to see which was the real dominant stream at the point of that confluence?

A. I wasn't concerned with that because all the water had to go into the Mustinka channel below.

833 Q. So you didn't concern yourself to ascertain whether the major portion of the water at that point was coming from the old Mustinka river in a state of nature or not?

A. No, sir.

Q. Do you know how much greater drainage area was tributary in a state of nature to the Twelve Mile creek than was tributary to the old Mustinka river, as you call it?

A. Probably about 40 per cent greater area or 50 per cent, I am estimating roughly from the drainage areas.

Q. There was about twice as much drainage area tributary to the Twelve Mile creek in a state of nature as there was to the upper Mustinka river, the old Mustinka river, wasn't there?

A. Roughly speaking.

Q. And there was two or three times the volume of water passing

through the Twelve Mile creek and on around that bend in a state of nature than there was coming down the old Mustinka river, was there not?

A. I don't see why, there was only twice, not quite twice the drainage area.

Q. Do you know anything about the comparative amount of drainage, the velocity of flow?

A. I would infer that the Twelve Mile creek would drain in a state of nature a total of, roughly speaking, without checking up the areas precisely, twice as much water as the old Mustinka river, but coming from a more level country in the headwaters, it wouldn't come so quickly.

Q. Do you know anything about the velocity of the flow in the old Mustinka river down to where it makes the bend to the west?

A. No, I do not, not from personal observation.

Q. Do you know anything about the velocity of the flow in the Twelve Mile creek?

A. Not from personal observation.

Q. Do you know anything about the slope of the channel
834 in it?

A. Only as taken from the contour maps.

Q. You then assumed in your answer to the hypothetical question that the greatest of this volume of water in this delta zone came down with considerable velocity of flow from this moraine zone to the eastward and settled in those comparatively level lands around the confluence of the several parts of the Mustinka river?

A. I assumed that it came down from the higher land, in whichever direction it was, and settled there.

Q. Did it make any difference how fast it came or how slow in your opinion?

A. If it came in a long steady flow, even an inadequate channel would carry away a considerable part of it. If it came abruptly it would overflow.

Q. So that if the major part of it came in a long steady flow from the Twelve Mile creek and the Five Mile creek flowing through this comparatively level prairie country, then the inadequate channel would take care of it?

A. It would take care of it better than if it came suddenly.

Q. I observe, Professor Chandler, that the slope of the land from the southern portion of this delta zone and the territory to the south of that has a uniform slope of about 5 feet to the mile northwesterly. I take it that the direction of the stream would be at right angles with the contour lines?

A. In general terms, yes, sir.

Q. Now, I take it then that there would be some flow, some movement of the waters throughout all of that area to the northwesterward?

A. Some movements, yes, sir.

Q. Now, arriving in the territory immediately west of the Great Northern railway bridge, we will say, northwest of Norcross,
835 the slope of the land being the same, I will ask you if in your opinion those waters would continue to go on northwesterly?

A. That part of the slope of the land appears from the contours to be westerly so that the waters would flow westerly.

Q. It would naturally turn westerly then, would it?

A. Yes, sir.

Q. And flow down the line of the old Mustinka river?

A. Yes, sir.

Q. And then, joining the channel cut by this Twelve Mile creek would go on around the bend and down into Lake Traverse?

A. In main portion at least, yes, sir.

Q. Do you attach any importance to this overflow into the Rabbit river or rather, lack of overflow after the construction of the Mustinka ditch?

A. I didn't attempt to estimate the exact amount of that. A small amount of overflow seemed probable but it seemed to me that in my opinion the construction of the ditch was a sufficient explanation of the flooding conditions without considering or attempting to determine whether there was or was not a change in the diversion into Rabbit river.

Q. So you do not take that into consideration at all?

A. No, that is a mere detail.

Q. You think the Rabbit river at this time carries substantially as much water as it ever did?

A. From where?

Q. From this area, if any of it ever reached it coming from this area.

A. My own estimate, not based on anything but a guess, was that originally 10 or 15 per cent may have been diverted and now 5 per cent from the Mustinka river basin to the Rabbit river.

836 Q. May have overflowed, you mean?

A. Yes.

Q. Ten per cent formerly went over, and it is 5 per cent now?

A. Yes, sir; in other words, the percentage was so small I did not consider it worth while considering but this is based on no personal observation.

Q. Professor Chandler, you are familiar with the Red river valley and the lands in the eastern part of the two Dakotas and the western part of the State of Minnesota, are you not?

A. Yes, sir, except the Red river valley portion of South Dakota, which is very small, I am not personally acquainted with to any extent.

Q. Would you say that these lands which you included in this so-called delta zone are properly denominated agricultural lands?

A. I have never formed the habit of classifying lands in that way for assessment purposes and I would rather not express an opinion.

Q. I will ask you what character of lands those are.

A. Where I noticed it, it was usually a clayey loam top soil rather thin, and a clay subsoil.

Q. What kind of clay?

A. I didn't notice particularly enough to describe it.

Q. As a rule what kind of soil forms agricultural lands?

A. Such soil as that frequently does.

Q. Weren't you able in going over that land, Professor Chandler, to form any opinion as to whether that was swamp or peat or muskeg or agricultural lands?

A. There was very little of it that would be classified as Muskeg. There was very little that I saw where there was any thick accumulation of vegetable matter such as we find in muskeg in most
837 cases if it had been covered with water through over the area as a whole. In most cases you would strike bottom very soon in wading, it wouldn't be classified as muskeg.

Q. What portion did you find you would denominate swamp land or muskeg and where did you find it?

A. I wasn't looking at it from that point of view and I wouldn't attempt to put limits on that; I made no notes in regard to that.

Q. Does this ditch and the system of ditches which you say runs into it as the system is now there constructed, drain and improve agricultural lands?

A. By preventing the overflow of the water I would consider that it did.

Q. And that you understand to have been the purpose of their construction?

A. Yes, sir.

Q. Now, does that drainage from those lands naturally pass into Lake Traverse through the Mustinka river?

A. Entirely or nearly the whole.

Q. Then if they are to be drained at all, the only natural and feasible method of draining is to drain them into this Mustinka river and have the drainage pass down into Lake Traverse?

A. It would be perfectly possible to drain the area or most of it into the Rabbit river. I wouldn't attempt to make an estimate without detailed surveys whether that would be more or less expensive than the method that was adopted, but if it was less expensive then for Traverse county alone, the delta area alone, I would recommend it as the most feasible but in any case it would not be for the Red river as a whole. It would be——

838 Q. Disastrous?

A. Disastrous, if there is a sufficient fall so that without an unduly expensive ditch the water could be diverted across through the Tintah slough region into the Rabbit river, if there was sufficient fall for this after it reached the Rabbit river, it would go into the Bois de Sioux more quickly than in the present artificial state because both detaining basins would be eliminated.

Q. And there would be no impounding and distributing reservoir at the confluence of the Bois de Sioux and the Rabbit to take care of it?

A. No, sir, so if it were feasible for the people of Traverse county as a whole to consider, it would not be proper for the people as a whole, the residents of the valley.

Q. It would be more disastrous than the present arrangement?

A. Yes, sir.

Q. In speaking of the possibility of recurrence of these flood con-

ditions in the Bois de Sioux valley, do you take into account the probable construction of other ditches into this system?

A. I had not been considering them, I was considering only present conditions.

A. There is a considerable area, I think, something like 470 square miles of agricultural lands in North Dakota and South Dakota that are naturally tributary to Lake Traverse and the Bois de Sioux river, the same as these lands in Minnesota are tributary thereto?

A. Yes, sir.

Q. And if those lands are to be drained the only natural and feasible outlet for the drainage of them is into Lake Traverse and the Bois de Sioux river?

Mr. Boutelle: That is objected to as not proper cross-examination, immaterial and not an issue in the case.

839. A. I presume so.

Mr. Palmer:

Q. Did you make an examination to s.. whether there had been ditch construction into Lake Traverse and into the Bois de Sioux river on the Dakota side?

A. No, sir.

Q. So that in making up your opinion as to a recurrence of these flood conditions and the floods that have already taken place, you did not take into account any drainage from ditches in North Dakota and South Dakota?

A. No, sir.

Q. Nor did you take into account any of the natural drainage from this area in North and South Dakota into Lake Traverse and the Bois de Sioux river?

A. Yes, sir, I did that.

Q. How much?

A. Same as there has always been.

Q. That is, you considered it just as though there was no ditching done in either North or South Dakota into Lake Traverse or the Bois de Sioux?

A. Yes, sir.

Q. Did you take into consideration there might be in the future drainage of those lands into Lake Traverse and the Bois de Sioux?

A. That was not concerning me. In that case——

Q. I suppose if they were drained in on the Dakota side they would simply add to this probability of overflow of the lands in the Bois de Sioux valley?

A. Yes, sir.

Q. The reason for the overflow of this Bois de Sioux valley is the inadequacy of the outlet from where it leaves Lake Traverse about two miles south of White Rock, Dakota?

840 A. Three miles.

Q. Three miles up to the confluence of the Rabbit river?

A. In a state of nature there was a condition of equilibrium between the inflowing channels and the outflowing channels, they were all inadequate. The present Bois de Sioux channel is inadequate to carry the water of the improved Mustinka channel.

Q. With the settlement and improvement of the lands on the Minnesota side particularly thus far has arisen this probability of overflow of the lands in the Bois de Sioux valley, am I right?

A. With the improvement of the channel that was for the interests of the settlers and farmers there, yes, sir.

Q. On the Minnesota side?

A. Yes, sir.

Mr. Boutelle:

Q. What do you mean by the improvement of the channel?

A. The improving of the inadequate channel of the Mustinka river.

Mr. Palmer:

Q. Which was necessary for the drainage of the lands in Minnesota?

Mr. Boutelle: Objected to as incompetent, immaterial and irrelevant, not proper cross-examination and that it does not make any difference in the legal issues of this case whether it was necessary or unnecessary.

A. From the act of legislature of the year 1911 that has been introduced as one of the exhibits I infer it was necessary.

Mr. Palmer:

Q. Independently of that, Professor Chandler, it was necessary that this improved channel of the Mustinka be put in and that these lateral ditches be put in, this ditch system be put in, if these
841 lands on the Minnesota side were to be properly drained and improved?

A. Certainly.

Q. What is your idea as to whether the Mustinka river after its confluence with Twelve Mile Creek coming from the south was in a state of nature a sufficient outlet for the drainage of this delta zone be a system of ditches such as is there now?

A. Insufficient for the drainage of that even before the ditches were constructed.

Q. Suppose some of those ditches or all of them, as some of them are now, had been put across this delta zone and into the old Mustinka river at a point, we will say, below the present confluence of the cut-off ditch with the original Mustinka channel, would they not there have had a sufficient outlet into Lake Traverse without any improvement of the river?

A. Of the lower Mustinka river?

Q. Yes.

A. The channel would have been, from rough computations I have made, would have been inadequate but they would have had some outlet, better outlet than nothing.

Q. So you think that a restoration of that Mustinka river to a state of nature would practically destroy the outlet of all that ditch system?

A. Yes, sir.

(At this time recess was taken until September 26, 1917, at 10 o'clock A. M.)

842 September 26, 1917, at 10 a. m.

E. F. CHANDLER, being recalled for further cross-examination, testified as follows:

Examined by Mr. Palmer:

Q. In giving your opinion that this ditch accounts for the summer flood in the Bois de Sioux valley in 1915, what do you assume to have been the run-off from the Mustinka watershed in a state of nature?

A. Unless as a result of cloudbursts or violent storm, not to exceed .5 to .7 of an inch per month from the entire surface of the drainage area.

Q. Per square mile?

A. No, of the drainage area, which would be approximately one-half to three-fourths of a cubic foot per second from each square mile through the month.

Q. From what do you derive those figures?

A. From comparisons with all the other stations or streams in the Red river valley and in the Minnesota river valley where records have been maintained by the government for a long period of years.

Q. Are there localities along the Red river valley similarly situated to this Mustinka watershed?

A. In each valley the local conditions vary somewhat according to topography, etc.

Q. What locality do you compare with this in order to get these figures?

A. Some of these streams come from a country in which the run-off is much less than from the Mustinka, some in which it is presumably much greater. For example, the Ottertail river should give about the same flow as the Mustinka but rather greater on account of the more rapid slopes.

Q. Will you state those comparisons which you have made in figures?

843 A. I have adopted intermediate figures between the Ottertail and the upper Minnesota. There is no station in this region which has given a run-off in a single month as great as one inch except after a cloudburst.

Q. What are the percentages?

A. I didn't use percentages so far as I recall.

Q. What comparison did you make between this watershed and that of the Ottertail river in figures?

A. It was some months ago that I made the comparisons and I don't recollect the details.

Q. You think a reliable comparison can be made between the run-off from the Ottertail river watershed and the Mustinka river watershed?

A. Not an accurate determination but the Ottertail and the Minnesota river headwaters, the Mustinka lies between, and presumably an average would be approximately correct.

Q. What are your figures to show that this run-off in a state of nature from the Mustinka watershed is at all reliable or authentic?

A. I can adduce, if wished, the records of the Minnesota river and the Ottertail river to show that under no ordinary conditions in either of these streams any greater flow than this came down.

Q. How did you get those figures on the Ottertail and on the Minnesota, what do you take them from?

A. The Ottertail river——

Q. I say, what do you take them from?

A. From the report for 1912 of the state drainage commission of Minnesota and from the annual reports of the United States Geological survey.

Q. Reports of what?

844 A. Of the operation of gauging stations which include daily gauge height records and occasionally current-meter measurements so that the daily, monthly and annual discharge is published with an average accuracy assumed to be within 10 per cent.

Q. Would it not be a better plan then to take the actual gaugings from this Mustinka watershed run-off than to take the gaugings from the Ottertail and the Minnesota and compare them without taking into account at all the actual gaugings of the Mustinka?

A. If a gauging station had been established on the Mustinka river 10 or 15 years ago we should be fortunate, it would be incomparably better.

Q. Well, wasn't there a gauging station on the Mustinka beginninning with the 6th of June, 1916, the very time that is material here?

A. Yes, sir.

Q. And that has been maintained to the present time?

A. Yes, sir.

Q. Now, I wish you would take those gaugings in the Mustinka river from, we will say, June 6th, 1916, to June 6th, 1917, and tell me what the actual run-off in the Mustinka watershed is shown to be from those gaugings?

A. For the first six days, my recollection is, of June, 1916, the discharge was estimated because the station was not established until the 7th of June. The mean discharge for June thus determined was 220 second feet, total. The mean for July 853 second feet. The mean for August, about 120 second feet. The mean for the remainder of the open season was less than 100 second feet and I haven't the precise figures for that at hand. The mean for the winter was very

small, so small as not appreciably to affect the total. The mean for March, 1917, was about 250 second feet; the mean for April, 1917, was 650 second feet; for May, 160; for June the figures did
845 did not come to me. I can give the number of inches between June 1st, 1916, and June 1st, 1917, if you wish.

Q. All right, I want the number of inches of run-off per square mile.

A. Taking the figures that I just gave for the year from June 1st, 1916, to June 1st, 1917, the average or mean discharge total in cubic feet per second would be approximately 207 cubic feet per second. Assuming that the drainage area above the gauging station, said gauging station being at or near the Wheaton railroad bridge, assuming that the drainage area above this is 776 square miles, this gives a mean discharge for the year of about .26 of one cubic foot per second per square mile, which would aggregate in a year about 3.4 inches for the area drained.

Q. Now, that shows the run-off then during that period with the conditions as they existed at present?

A. Yes, sir.

Q. The ditches all in operation?

A. Yes, sir.

Q. In your opinion you estimate that run-off, you say, in a state of nature without any of these artificial conditions to be .50 to .70 instead of .26, more than double what it actually was during the period mentioned under the artificial conditions. Why do you do that?

A. I was estimating the maximum for a wet month. This .26 is the actual run-off for 12 months. I would estimate in a state of nature from .10 to .18 as an average for the year.

Q. Why?

A. The rivers of this region in a normal year bring not to exceed a total of 2 inches depth from their drainage areas into the main stream, which is an average of about .15 of a second foot per square mile through the year.

Q. You ascribe this increase then to the increased run-off
846 through the capacity of these ditching operations?

A. The ditching operations do not have so great an effect in increasing the total annual run-off as in making it irregular. The percentage of increase in total annual run-off would depend upon the amount of formerly overflowed area that has been drained or prevented from overflow by the construction of ditches, but the construction of ditches caused the water to come more abruptly so as to cause floods.

Q. The ditch construction then would not increase the total annual run-off precipit-ed?

A. To some extent, but the present inadequate channel of the Bois de Sioux in my opinion would be perfectly capable of carrying the total run-off from this whole drainage area if by some artificial means this run-off could be equalized so as to run in a steady flow during the year. The channel is large enough without overflowing at the high bridge to carry about 6 inches run-off in the year if this 6 inches came in a uniform stream.

Q. In a state of nature, then, before this country was ditched or cultivated, as I understand you, while it was covered with prairie sod and prairie grasses, no ditches to interrupt the flow, no cultivated fields to absorb the precipitation, the run-off was more gradual and slow and uniform than it is with the land in a state of cultivation in times of little precipitation, dried out by the ditches and the prairie sod broken, that is your opinion?

A. Cultivation and improvement of the land opens up drainage channels off of every field to that after a violent rain water runs off more quickly than off of prairie sod.

Q. Then, as I understand you, these ditches are operative injuriously to the lands in the Bois de Sioux valley only in times of flood, heavy, sudden precipitation?

847 A. If by reason of the ditches the detaining basin has been removed which would in a state of nature have evaporated a considerable fraction of the run-off more or less from year to year, if this portion instead of being evaporated is carried into Lake Traverse, the total annual run-off into Lake Traverse would thereby by somewhat increased and Lake Traverse kept at a higher level and its value as a detaining basin thereby lessened, but the amount of this is not susceptible of precise measurement in the absence of gaugings for the former years.

Q. If the amount of increased run-off from an indefinite, indetermined and, so far as appears from your testimony, an indeterminable area can not be computed with any degree of accuracy, why did you take it into consideration?

A. Because it unquestionably exists and its entire tendency is in this direction, not in the other.

Q. You say that this detaining basin, this so-called delta zone, unquestionably existed, is that what you assumed?

A. Yes, sir.

Q. I ask you to assume, Professor Chandler, if you please, that it never had any existence in the world, except as a figment of the imagination, would that make any difference with your opinion?

A. If it could be assumed that such detaining basin never existed, the increase from natural conditions in the discharge of the Mustinka resulting from the bringing into the Mustinka of water that would have evaporated in a non-existent detaining basin would, of course, not be taken into consideration.

Q. It would make a substantial difference in your opinion then, Professor Chandler?

A. Yes, sir.

Q. If the ditches do not increase to a substantial extent the total of annual run-off, then you take them into consideration only as they appeared in flood times to bring the water into Lake Traverse more rapidly than it would have arrived there in a state of

848 nature?

A. If there is no overflowed or flooded or stagnant land drained by the ditches, in other words, if the ditching is simply a rectification of the channel which already is able to hold the water without overflow, then this rectification of channels or improvement of channels or ditching has no considerable effect except to bring the same total of water in in a shorter time.

Q. What was the carrying capacity of the old river, let me say, from a point where we find the confluence of the Twelve Mile creek and the old river in Section 7, Township 128, of Range 45, downstream or on around the bend, in a state of nature?

A. I should hesitate to make any precise, give any precise figures, although I will give an estimate in a moment for this, for the reason that although I looked at it at numerous points when on the ground, I did not personally run levels along the stream to determine its exact fall, nor to determine the total amount of curvature which I have assumed to be about 3,000 degrees in the six miles, nor to determine its precise average width and depth, nor to be certain that there was no places so obstructed as to cut off and detain the flow much more, but from an offhand glance I would estimate its capacity when banked full as 800 to 1,000 second feet, cubic feet per second.

Q. The witness Ralph has figured it as 1848 cubic feet per second.

A. If he had detailed levels and cross-sections along the whole line I would not set up my opinion against his on that.

Q. If it were, we will say, Professor Chandler, a capacity of 1,800 cubic feet per second, I want you to tell me how many days in 1916 from those gaugings beginning June 6th the capacity of that
849 old river was exceeded.

A. The maximum discharge at the gauging station near Wheaton from June 1st, 1916, to December 31, 1916, was 1630 cubic feet per second.

Q. Then if the carrying capacity of the old river was 1800 cubic feet per second, at no time under present conditions during that flood season of 1916 would it have been exceeded?

A. If the original channel be assumed to have such capacity at that point, it would have carried the maximum discharge.

Q. Now, you must take into account also that these lateral ditches aside from the Mustinka state ditch itself brought a considerable quantity of water to the river at this point around the bend?

A. Yes, sir; I have supposed that during those flood seasons since the construction of this ditch there was water flowing in the old channel and this cut-off both at high stages.

Q. I am asking you whether it could not, every drop of it, have flowed in the old channel if it had the capacity that I have mentioned?

A. If it had that capacity, it could.

Mr. Bronson:

Q. That is, for the six months, June to December, 1916?

A. June to December, 1916.

Mr. Palmer:

Q. Then if the old channel could have taken care of and carried the maximum discharge during that period, I ask you to tell me how you figure that Mustinka cut-off ditch operated to increase in the slight amount of natural flow down the Mustinka river into Lake Traverse?

Mr. Boutelle: When, in 1916? From June to December, 1916?

50 Mr. Palmer: Yes, sir.

A. If such be the case, which I doubt from rough measurements that I recollect of the old channel at other points further down, but if such be the case that its carrying capacity was 1800 cubic feet per second from the point mentioned by the cut-off to the outlet of the Mustinka river, it would not have affected very considerably flood heights in the Bois de Sioux river, although it might have had an effect on Lake Traverse by bringing the water more abruptly into the Lake by accelerating the speed of discharge.

Q. But surely there must have been in a state of nature a sufficient volume of water and flowing with sufficient velocity to have cut that old channel of the capacity that we find it?

A. Yes, sir.

Q. Then, have you any figures, Professor Chandler, to demonstrate that this ditch construction brought any greater quantity of water into Lake Traverse in the season of 1916 than would have come in a state of nature?

A. I have figures approximately accurate for the discharge at Wheaton, a maximum discharge at Wheaton, of about 3,500 cubic feet per second during the spring of 1916 and an average for ten days of 2,500 cubic feet per second, more or less.

Q. Where did you get those figures?

A. These figures are based for the maximum upon flood heights as reported by residents unofficially and as measured by Dean Shenehon recently, to which the rating table developed from the actual current-meter measurements and actual cross-sections taken at the gauging station at subsequent months by the Geological Survey have been applied.

Q. Give me those figures.

51 A. The highwater or flood height at the bridges near Wheaton, as reported by the residents, was from 1 to 2 feet above the bridge floor at the highway bridge near the railroad at the Milwaukee railroad, which would be from 15 to 16 feet above low water stage in the Mustinka river, such as observed by me in June of 1917. From the measurements made by the employees of the Geological Survey during 1916 and 1917, the highest of which was at a height of about 12½ feet above low stage, giving velocities at high stage flow and a discharge of 2,300 cubic feet per second. From these measurements a rating table is developed to show the discharge with reasonable accuracy through a rise of several feet more which would give the discharge at a height of 15 and 16 feet above low water, amounting to a maximum of 3,500 cubic feet per second.

Q. For how long a time do you assume that that maximum 3,500 cubic feet per second continued?

A. The maximum flood I assumed for only one day, rising rapidly to this and falling gradually according to what is usually seen in such streams in the spring flow, bringing it down to a minimum of 2,000 cubic feet per second for the lowest day of the 10 day period and an average of 2,500 cubic feet per second. This average, however, may easily be 10 per cent in error.

Q. Now, you asume then that there was a discharge at this highway bridge——

A. Yes, sir.

Q. — northwest of Wheaton of an average of 2,500 cubic feet per second for ten days?

A. Yes, sir.

Q. When?

A. During the spring flood of 1916.

Q. And you assumed that in a state of nature that condition never before obtained?

A. Yes, sir.

852 Q. Why do you assume that, how do you know it?

A. Because no reports came to me of such correspondingly greater height in the river at that point that would be necessary before the rectification of the channel to bring that amount of water.

Q. That is, no reports came to you of any floods there in a state of nature for ten days with an average discharge of 2,500 cubic feet per second there at the bridge?

A. Yes, sir, correct.

Q. That assumes that the flood was 2 feet above the bridge floor, you say?

A. In a state of nature it would have to be much higher than that.

Q. I say, at the time.

A. Yes, sir; 1 to 2 feet.

Q. One to two feet above the bridge floor; and it assumes further that it was up to the bridge floor for ten days?

A. No, sir, I assumed for two days a height up to the bridge floor and continuously falling the lower days to a discharge of 2,000 feet, which would be about 2 feet below the bridge floor. It assumes that for ten days it was within 2 or 3 feet or thereabouts, of the bridge floor.

Q. That gives you how many cubic feet per second for that ten days in order to account for this flood in the lake?

A. 2,500 cubic feet per second.

Q. How much do you assume that it would have been in a state of nature there in 1916?

A. Not exceeding 1,500 cubic feet per second.

Q. Why?

A. That would be an average run-off of 2 second feet per square mile, which is as great a run-off as any records that I recollect show for such a country as that in a state of nature.

853 Q. Well, then, you think that in a state of nature there was 1,500 cubic feet per second that came down there?

A. That there might have been, yes, sir.

Q. How did it come there?

A. From the country above.

Q. Through the old channel?

A. I didn't assume that there was 1,500, I assumed that there was not more than 1,500; whether it could get there, as much as that, would depend on the channel which I never saw before its rectification.

Q. If we assume it had a capacity of 1,800 second feet as testified

to by Mr. Ralph, then in a state of nature there could have been 1,800 second feet come there even through the channel?

A. I didn't myself assume 1,800.

Q. Well, it is fair to assume that, I suppose.

Q. If that be assumed the old channel would have been able to bring that amount of water if it had run uniformly for ten days.

Q. If they had had floods there in a state of nature along that lower part of the Mustinka valley it would indicate that in a state of nature there was more than 1,800 cubic feet per second that came down there, wouldn't it, Professor Chandler?

A. By the lower Mustinka valley down to Wheaton?

Q. Yes.

A. If in the lower Mustinka valley near Wheaton near the gauging station they had floods in a state of nature after the channel was rectified——

Q. No, before it was rectified.

A. In that case 1,800 cubic feet per second would more than surpass the value of the channel at Wheaton because that channel was deepened and dredged, widened and straightened.

Q. What is the capacity of the new channel there at the
854 bridge?

A. At the bridge before it overflows the road it would be at present roughly 2,000 to 2,500 cubic feet per second.

Q. What is it before it overflows the bank out there?

A. I have no definite enough levels to determine that.

Q. Then, Professor Chandler, if in a state of nature they had floods along that lower Mustinka and the old channel had a carrying capacity of 1,800 cubic feet per second, that would demonstrate that in a state of nature they had more than 1,800 cubic feet per second there?

A. I know nothing whatsoever concerning the capacity of the old channel at Wheaton. The old channel had been dredged and destroyed.

Q. I am speaking of the old channel above that carried the water.

A. Yes, but you are asking about floods at Wheaton.

Q. No, I am asking about floods all along the lower Mustinka valley, by which I mean from a point after the turn to the north and where the river turns and runs westerly along the line of which it has been testified here they were subject to floods.

A. The only point at which I could form a definite opinion concerning the carrying capacity of the lower Mustinka channel would be at that bridge. From its present capacity of 2,000 to 2,500 cubic feet per second without overflowing the road and from offhand glances at the amount that it appeared to have been enlarged and deepened, I should estimate roughly that in a state of nature 1,000 second feet to 1,200 second feet, more or less, would have caused the channel to overflow near Wheaton.

Q. Did you examine the old channel above Wheaton in order to determine its carrying capacity?

A. No, sir. You mean, at the bend?

855 Q. Yes, sir.

A. Not between Wheaton and the outlet of the cut-off.

Q. You did not?

A. No, sir, not in detail.

Q. That part of the channel has been dredged out as I understand it, but assuming that that portion of the channel in a state of nature had a carrying capacity of 1,800 second feet and it was overflowed in a state of nature, as testified to by Dean Shenehon in his opinion, it would indicate that in a state of nature there was more than 1,800 second feet brought there, would it not?

A. From my own observations at that point I have no reason to make any assumption concerning the capacity of the channel between Wheaton and the outlet of the cut-off.

Q. Do you agree with Dean Shenehon in his opinion that in a state of nature that area from about two miles below the Wheaton bridge up to the bend at the north and including the area around the northerly bend was in a state of nature a detaining basin subject to overflow?

A. From the casual glances that I gave it in passing by, there appeared to be considerable areas of overflow land frequently overflowed, but I made no measurements concerning that.

Q. That is, upon that area I have last described?

A. Upon that area.

Q. Now, assuming that the capacity of the old channel was 1,850 second feet and that you have a 10 per cent error in your average of 2,500 cubic feet per second for ten days, making it 2,250 instead of 2,500, that gives a difference of 400 second feet increase under present conditions over a state of nature. How much would

856 that 400 extra second feet for ten days raise the lake, Lake Traverse?

A. If it were put into the lake in one mass before the lake had opportunity to discharge any of it it would raise the lake, roughly, 6 inches.

Q. Figuring how many square miles in the lake?

A. 25.

Q. And what elevation of the lake?

A. That is another question, at elevation 974; at elevation 976, roughly, 5 inches.

Q. The lake would have to be at an elevation of 976 in order to have this increased amount of water do any harm to the lands in the Bois de Sioux valley?

A. That wasn't included in the hypothetical question, anything in regard to the height of the lake; your question was a question in mathematics.

Q. At elevation 976 it would raise the lake 5 inches?

A. A flow of 400 cubic feet per second for ten days entering the lake at elevation 976 would raise the lake 5 inches or thereabouts.

Q. If none went out?

A. Yes, sir.

Q. Now, I ask you to assume that the normal discharge at the high bridge near Fairmount in the Bois de Sioux of 1,500 second

feet was going out all the time, how much would it raise the lake, this extra water?

Mr. Boutelle: Are you speaking about this 400 second feet?
Mr. Palmer: Yes, sir.

A. It would raise the water in the lake an excess amount of about 5 inches.

Q. You assumed that the very most that could possibly have been the amount of increase by this ditch construction was double that 400 second feet, that is, 800 second feet for ten days?

857 A. I assumed that the very most was from 1,000 to 1,500 second feet for ten days.

Q. You assumed then that the extra amount instead of 400 second feet was 1,200 or 1,500 second feet for the ten days?

A. 1,000 to 1,500.

Q. Dean Shenehon assumed it to be 800 for the ten days. What figures did you use different from his?

A. I assumed that the ten day run-off, not the total annual run-off but the ten days' run-off, was doubled by the construction of the ditch system facilitating its being brought quickly to the outlet of the river.

Q. In other words, Professor Chandler, you determined how much extra run-off was necessary to account for this flooded condition in the Bois de Sioux valley and then assumed that this ditch was to blame for it, didn't you?

A. I assumed this increase in the run-off of doubling during the flood ten days and found, rather to my surprise, that this would be enough water to approximately account for the flood conditions below.

Q. Sure, and that is why you did it?

A. Yes, sir; you mean why I figured it?

Q. Yes, that was the reason you figured it that way?

A. No, that is the reason why I investigated further; if there had been no flood conditions anyway I would have had no occasion to investigate this detail.

Q. Why didn't they have a flood there in the early spring of 1915 in that Bois de Sioux valley?

A. Flood conditions in early spring are quite different from flood conditions later in the season. During the winter snows accumulate on the ground, the total amount accumulated or stored in the form of snow is not ordinarily to exceed 2 inches or thereabouts——

858 Mr. Boutelle:

Q. You don't mean of snow?

A. No, in water, of snow accumulated when melted in the form of water does not ordinarily amount to more than 2 inches or thereabouts. A total of 2 inches water from a drainage area, if it runs off gradually or part of it and a part of it evaporates in the warm spring winds, does not cause flood conditions even after a winter of deep snows, but if there is a sudden thaw, warm winds and perhaps a

few warm rains at precisely the inopportune time those 2 feet of snow are suddenly melted and it forms 2 to 2½ inches of water, which may under certain conditions at the time of the break-up get into the channels very suddenly.

Q. Then, as I understand you, the time of your floods in the Red river valley including this portion is not early in the spring?

A. The time of high water or flooding is ordinarily in the early spring if it happens, if the snow and temperature conditions happen to be such as to bring the water off suddenly. The record floods, speaking of the river generally, the Red river valley in general, are almost always at the time of the spring break-up.

Q. And I take it that that is because the waters flow to the north and the outlets thaw out at the wrong end first?

A. The spring break-up or thaw in the Red river valley works north down the river approximately at the rate of 100 miles a week. This intensifies the floods in the Red river itself.

Q. And its tributaries?

A. If the tributary is a very long one and runs north.

Q. As I understand it, your computations as to this increase in the water in Lake Traverse are made upon the conditions ob-
859 taining in the early spring of 1916 and not on any conditions that were found there after the 1st of June?

A. They were made upon the basis of excess flow at any season of the year.

Q. I thought you said they were made upon reports that were made to you and statements that were made to you by people who saw how high that water was at the bridge in the early spring of 1916?

A. My estimate of the amount of flood in the early spring of 1916 was made upon such statements.

Q. When was that flood, when was the time of it according to the information you got, wasn't it at the break-up in March?

A. Thereabouts, end of March or early in April, I have no precise dates.

Q. Did you take into consideration in making your gaugings, if I may call them so, that the channel was more or less blocked with ice and snow?

Mr. Boutelle: Which channel?

The Witness: The channel of the Mustinka river?

Mr. Palmer:

Q. Yes, the channel you are talking about.

A. No, sir.

Q. Did you ascertain whether the cut-off ditch was operative at the time of that flood or whether it was filled with ice and snow and inoperative?

A. The reports of residents along the cut-off was that after the ice went out in the spring of 1916 the cut-off in one or two points slightly overflowed, not to any considerable extent, a few inches at points,

but that it remained nearly full for 3 days to 3 weeks, depending on who the reporter was.

Q. That is, at the time of the break-up in the spring, at the time of this flood, you took into consideration that the cut-off was open and operative?

A. Yes, sir.

860 Redirect examination.

By Mr. Boutelle:

Q. Are there any matters to which you have been referred in either your direct or cross-examination to date, matters of calculation that you would like to correct, professor?

A. In the hypothetical question of yesterday concerning the effect as it would be predicted in the absence of actual gaugings of a 10 inch precipitation in the Lake Traverse drainage area, the total effect of which to compute with any degree of accuracy, or approximation occupies nearly an hour's time, in my rough computation of yesterday I made two errors.

Q. State what they were.

A. In the first place, the discharge in a state of nature I would estimate during the summer at about three-quarters of an inch off the entire drainage and for the drained portion of the valley at 1½ inches. The entire area which should be taken into consideration should be 1,300 square miles instead of 750, as by oversight I figured yesterday, and the net results as regarded of the lake and of the Bois de Sioux river would be approximately the same as in my answer of yesterday.

Q. Repeated references have been made in previous examination to the element of evaporation and questions have been asked with reference to evaporation on the water surfaces and on different characters of soil, that is, broken soil or sod, and so on. Can you tell me professor, taking a body of water such as Lake Traverse, have we records or data that would enable us to determine the average loss of the water from evaporation on such a body of water as that?

A. We have quite good records of that. The average by month in an average season neither more or less windy, more or less
861 humid, than the ordinary, is approximately, April, 3 inches; May, 4 inches; June, 5 inches; July, 6 inches; August, 5 inches; September, 4 inches, October, 2 inches over the whole surface.

(At this time recess is taken until 2 o'clock P. M.)

862 September 26, 1917, 1:30 P. M.

Hearing resumed, pursuant to adjournment, with all parties present.

WILLIAM RINGDAHL having been called as a witness on behalf of the defendant, was duly sworn, and testified as follows:

Direct examination.

By Mr. Palmer:

Q. Mr. Ringdahl, where do you live?
A. I live at Wheaton, Minnesota.
Q. What county is that in?
A. Traverse county.
Q. Is it the county seat of Traverse county, Minnesota?
A. Yes, sir.
Q. How long have you lived in Traverse county, Minnesota?
A. Since June 10, 1901.
Q. And have you lived at Wheaton continuously during that period?
A. Yes, sir.
Q. Prior to moving to Wheaton where did you live?
A. At Norcross, Grant county, Minnesota.
Q. Norcross is the village and railway station that has been mentioned here as on the Great Northern Railway, and just easterly of the eastern border of what has been described here by Mr. Ralph and the other witnesses at the Delta zone?
A. Yes, sir.
Q. When did you move to Norcross?
A. August 10, 1893.
Q. Did you reside at Norcross continuously from the date last mentioned to the time that you moved to Wheaton, Traverse county?
863 A. Yes sir.
Q. How far and in what direction is the old Mustinka river from Norcross?
A. North and northwesterly, about a mile.
Q. And how far is the beginning of the first section of the Mustinka ditch and in what direction from Norcross?
A. About two miles northwesterly.
Q. What is your age?
A. Forty-seven years old.
Q. What is your present occupation?
A. I am county commissioner of Traverse county, and I am also in the real estate and loan business, and insurance business at Wheaton.
Q. How long have you been engaged in the real estate, loan and insurance business at Wheaton?
A. All this time.

Q. All the time you have resided there?

A. Yes sir.

Q. How long have you been one of the Board of County Commissioners of Traverse county?

A. It is going on the 11th year.

Q. Has that been about eleven years of continuous service last past?

A. Yes sir.

Q. What was your occupation during the time that you resided at Norcross in Grant County?

A. I was in the grain, machinery, and fuel business, and also insurance and farm loan.

Q. This loan business that you speak of, is that and has it been largely farm loan business, making loans on farms?

A. Exclusively.

864 Q. And when you say you were in the grain business at Norcross what do you mean by that—buying grain at an elevator?

A. Yes.

Q. Were you in the business of buying grain at an elevator in Norcross during all the time of your residence there?

A. Yes sir, I should say with the exception of three or four months in the last end of that period.

Q. And were you engaged in the business of making farm loans continuously during your residence at Norcross?

A. Not the first three or four years.

Q. This insurance business that you speak of—does that include writing of insurance on farm buildings?

A. Yes sir.

Q. And did it also at the time of your residence at Norcross?

A. Yes sir.

Q. Mr. Ringdahl, are you familiar with the area that is colored light blue on this map, Complainant's Exhibit 1, and spoken of by Mr. Ralph and the other witness at the Delta zone?

A. Yes sir.

Q. Were you acquainted with that area prior to your residence at Norcross?

A. No sir.

Q. How soon after your residence at Norcross did you become familiar with this area?

A. Part of it I became familiar with in the fall of 1893, the eastern portion.

Q. And from that time on how intimately or extensively did you know this territory?

A. Now during the year 1894 and from that on up to the present time I have passed over that area very frequently.

865 Q. What was the occasion of your coming to know this area and to pass over it frequently?

A. I happened to get my wife in that area, and also I visited the farmers in order to get their business. I drove out to the farmers.

Q. You say that the lady that you married had her home in this area in question?

A. Yes, just acrossed the river, on the west side of the river, in Section 18, Township 128, Range 45.

Q. What was your wife's maiden name?

A. Hilda M. Hawkinson.

Q. Did she belong to an old family, that is a family of long residence in that locality?

A. Yes sir.

Q. They had been residing there many years previous to the time that you became acquainted with them?

A. Yes sir.

Q. And the place of their residence would be just outside of the western limits of this Delta zone as it is marked on the map?

A. Yes sir, right on the river bank in Section 18.

Q. That is on the westerly bank of Twelve Mile creek?

A. Yes.

Q. Now the purpose of your visits to the farms upon that area you say was to get the farmers' business—what kind of business?

A. Their grain.

Q. Did you have occasion to visit and inspect their farms for any other reason?

A. Later I inspected their farms on account of making them farm loans and farm insurance.

Q. How extensive was the farm loan business which you carried on in this area?

866 A. Now the first eight years it was not very extensive, but in the last sixteen years it has been quite extensive. I have also been examining land for the Union Central Life Insurance Company, that is, for their loans. I examined the security.

Q. Lands upon this area, do you mean?

A. Yes, part on this area and part outside of this area.

Q. In passing from Norcross from Wheaton I will ask you whether you would pass through this so-called Delta zone area?

A. Yes sir.

Q. And how frequently did you visit Wheaton during the time of your residence at Norcross?

A. About twice a year—sometimes more.

Q. And as I note from the map here the original limits of this so-called Delta zone come up to within about eighty rods of the Village of Norcross?

A. Yes, I guess it does.

Q. As marked upon this map here?

A. Yes sir.

Q. After your removal to Wheaton I will ask you if your acquaintance and knowledge of these lands in this so-called Delta zone continued?

A. Yes sir, more so than ever before.

Q. For what reason?

A. Because I was Commissioner for that district, Redpath, Clifton, and Lake Valley townships, both East and West Lake Valley.

Q. On Defendant's Exhibits 6 and 7 the names of these townships are marked, Mr. Ringdahl, and by the township of Redpath, you mean the same description as has been referred to as Township 28, Range 45?

A. Yes sir.

867 Q. And Clifton is 127 of the same Range and Lake Valley is 127 of Range 46?

A. Yes sir. Lake Valley is two townships, ranges 46 and 47.

Q. It runs over into 47 by being extended clear over to the lake?

A. Yes sir.

Q. How did your duties as county commissioner for this district comprising these three townships keep you in touch with these lands in this so-called Delta zone?

A. We had the supervision over building roads and bridges over these streams and over some of these ditches.

Q. And how about looking after the poor in those townships?

A. Yes sir.

Q. Did you have that do?

A. Yes sir.

Q. And the construction of proposed ditches?

A. Yes sir.

Q. What did you have to do with that?

A. We had to grant the ditches, and we generally looked over the lands where the ditches were to pass through, and after the ditches were constructed we examined them and so on.

Q. Were the ditches constructed over this so-called Delta zone area county or judicial ditches?

A. County ditches, most of them.

Q. I call your attention to Defendant's Exhibit No. 7, Mr. Ringdahl, and particularly in the townships that you have mentioned—Redpath, Clifton, and Lake Valley and in the town of Monsen, being Township 128, Range 46, and extending over into Range 47—these black lines marked C. D. If you will notice, there is C. D. 29. What does that mean?

A. County Ditch No. 29.

868 Q. And right below it the date, 1916?

A. That is the date when it was completed.

Q. And below that I find C. D. 30 and below it, 1916?

A. County ditch No. 30, year of completion.

Q. And on the entire map where ditches are designated as C. D. that means county ditch?

A. Yes sir.

Q. And there are some others that are designated judicial ditches?

A. We have one up here in the Tintah slough.

Q. And it would appear from this map, Mr. Ringdahl, that all of those ditches through this so-called Delta zone and the area surrounding it except the Mustinka State Ditch are county ditches?

A. Yes sir.

Q. And were you county commissioner at the time all of those were established and constructed?

A. Yes sir, all of them.

Q. You say it became your duty as one of the Board of County Commissioners to examine the conditions to see whether you would grant the petition for the construction of these ditches?

A. Yes sir.

Q. Now did you have any other duties?

A. Now during the time of the construction of those ditches we generally went once or twice to every ditch to see how they were progressing, and what kind of a ditch they made and so on.

Q. And these ditches, as I understand it, are paid for, the cost of laying them out and constructing them, by assessments upon the lands benefited?

869 A. Yes sir.

Q. And who passes upon and fixes those assessments?

A. There are three viewers appointed by the county commissioners and they go over the land and assess the benefits and the damages and then at the final hearing the commissioners have the last word.

Q. The duty of the viewers is to fix more in the nature of an estimate of the benefits and damages and the final assessment of the amount actually to be paid is fixed by the County Board? Is that right?

A. No, I think the viewers are assessing the benefits and damages, but in case anyone makes a complaint, a hearing is had, or at the final hearing they are heard and then reduced in case we find a reduction is necessary.

Q. So that the actual fixing of the amount to be paid is by the County Board?

A. It is in the last.

Q. And did you look over the lands along the line of these ditches in passing upon these assessments?

A. We did to a certain extent—not entirely—we depended upon the viewers to do that.

Q. But I apprehend if there was any special question raised you would go out and look at the land?

A. Yes sir, we would do that in some instances; otherwise, we called witnesses.

Q. Now the making of farm loans after your removal to Wheaton—did that continue in this same territory?

A. Yes sir.

Q. And does it to this time?

A. Yes sir.

Q. And how extensive is that?

870 A. Oh, I have been making about—do you want to know the amount?

Q. Well, something about the extent of it, yes?

A. I would say about a Hundred Thousand Dollars a year.

Q. And about what is the average amount on a single farm?

A. Oh, up to Four or Five Thousand Dollars on a quarter section of land.

Q. That is from about One Thousand up to Four or Five Thousand?

A. Yes sir, all the way from Five Hundred Dollars up to Four or Five Thousand Dollars per quarter section.

Q. And the matter of writing insurance on farm buildings, has that continued upon this territory since your removal to Wheaton?

A. Yes sir.

Q. And how extensive is that, Mr. Ringdahl?

A. Oh, I have made about twenty-five or thirty policies a year.

Q. And the matter of writing insurance on crops, hail insurance?

A. I have done that to a certain extent also, but not very much.

Q. And in doing that did you go out and look at the crop that you are to insure?

A. Yes sir.

Q. How frequently are the elections for the members of the Board of County Commissioners—what is the term of office?

A. Four years. The first time I was elected to serve an unexpired term of another member that resigned.

Q. So that you have gone through how many campaigns?

A. Four.

Q. And are you elected by the electors in this particular district?

A. Yes sir, the village of Wheaton, the Townships of Clifton and Redpath and the two Townships of Lake Valley.

Q. And during these campaigns have you traveled over
871 the territory to some extent?

A. Yes sir, I have.

Q. Then, Mr. Ringdahl, compared with the other residents in that locality, how extensive and intimate would you say was your knowledge of this particular territory which has been described here as the Delta zone and the territory surrounding it?

Mr. Pinkney: Objected to as argumentative and calling for a conclusion.

A. I know my district, that is those four townships, I believe, better than any other living man.

Q. Now it has been testified to here by Geo. A. Ralph that this territory which he has described as the Delta zone and which comprises something like seventy-five sections, as colored here light blue on Complainant's Exhibit 1—I will not describe the sections at this time—prior to the year 1896 was a large swampy area, overgrown with rushes and aquatic grasses, and unsuited for the habitations of man, except that there were possibly ten or twelve settlers on the knolls, unsuited for cultivation except a few of the very high spots of land, and in large part a watery waste. Is any of that statement true? Is that statement true?

Mr. Bronson: The form of the question is objected to, and objected to further upon the ground that it is an incorrect statement of the evidence given by the witness and calls for a conclusion of the witness instead of evidence concerning real facts, and also in part calls for opinion evidence.

A. No, it is not true.

Q. Do you know how many settlers there were upon this area which is comprised in the part of this map colored light blue, and sets of farm buildings, how many residents actually cultivat-
872 ing the lands there were in and immediately prior to the year 1896?

A. Yes sir.

Q. You may state how many?

A. About 128. I wouldn't say as to one or two, but it is approximately.

Q. Now are you able to state the names of these residents and a description of their farms, and a very brief statement of the condition of their farm improvements in the year 1896?

A. I don't know just how fully I can state as to improvements, but I can give the names and the quarter sections or descriptions of land approximately.

Q. And can you state something about the degree of cultivation of the farms?

A. I think I can.

Q. Well, speaking particularly of the year 1895, do you have any special knowledge of the crop conditions in this so-called Delta zone area?

A. Yes sir.

Q. What is it?

A. We had one of the best crops we ever had.

Q. That year?

A. Yes sir.

Q. And something about the amount of grain that was marketed?

A. I took in at the elevator that I handled——

Q. At Norcross?

A. Yes—148,000 bushels.

Mr. Bronson: Move to strike out the answer as not responsive to the question.

Q. Of what?

A. Wheat and other grains.

Mr. Bronson: Same motion.

873 Q. That fall of 1895 do you mean you took in 148,000 bushels of grain?

A. That is from the 1895 crop.

Q. Was there still another elevator at Norcross?

A. Yes sir.

Q. And what portion, Mr. Ringdahl, in a general way of that grain coming to your elevator came from this so-called Delta zone area?

A. About sixty-eight per cent.

Q. Now will you give me the brief statement that we have spoken of of the farms comprised in this so-called Delta area in the year 1896?

A. I have to refer to my memorandum. Do you want the name of them?

Q. Yes—in Township 128, Range 45—the Township of Redpath?

A. Alfred Anderson—Northwest quarter of Section 13. He had some buildings on there and part of it was under cultivation. I couldn't say just how much.

Q. Were the buildings occupied by Mr. Anderson?

A. Now the man that lived there, he worked the land and he also stayed with his—I think John H. Hanson was his brother-in-law, and he stayed partly with him. Gust Armstrong—West half of Northwest quarter of Section 16. He also had some other land there. He had buildings on the land, and it was under cultivation.

Q. How much?

A. Eighty acres, but he had another twenty acres acrossed the road, but I couldn't say if he had that in 1896.

Q. Was that all under cultivation?

A. I couldn't say if it was all under cultivation, but I think it was with the exception of where the buildings stood and the

874 trees.

Q. Now that bordered right on the river?

A. That is close to the old Mustinka river, yes.

Q. Wouldn't that border on it?

A. It was close up to this land. I couldn't say just how many rods it is.

W. M. Brown and C. F. Brown. They were two brothers that owned the North half of Section 36 in the same township. They had good buildings and most of that land was under cultivation, with the exception of the pasture and a strip of hay land that they had on the southeast portion of this land.

Ole Bronander. The Southwest Quarter of Section 10. He had good buildings on the land and it was under cultivation. He worked it himself too. I think there was about 110 acres of that under cultivation. Of course, I can't give these figures exactly correct. I know them approximately, as far as the cultivation and the buildings are concerned because it is so far back it is hard to remember those things, but this is to the best of my judgment, to the best of my knowledge.

Q. Now after disposing of the Southwest of 10?

A. There was another renter in there—C. John Buck. He rented some land near this Section 10, but I don't know just what quarter, but I knew the man very well and he hauled some grain to me.

Q. Was the land on which he farmed within this so-called Delta zone?

A. Yes sir, and I think he stayed part of this time with this Bronander.

By Mr. Bronson:

Q. Can't you state in what section?

A. No, I couldn't do that.

875 Q. Or how much?

A. He was a tenant there. He hauled in some grain to me, but I couldn't say what land he rented in there. He may have

rented a piece of land that had no buildings on, but it would be near the place where he made his home—in or near Section 10.

By Mr. Palmer:

Q. And the next one?

A. Nels O. Bror—Northeast Quarter of Section 10. He had good buildings and about eighty acres under cultivation.

Hans Bloom—Southwest Quarter of Section 4—good buildings, about 115 acres under cultivation. Of course I could give the cultivation more correct if you would allow me to bring up the assessment books for 1896.

Q. Have you those assessment books?

A. Yes sir.

Q. You may refer to them if you wish to refresh your recollection, Mr. Ringdahl.

A. Well, those assessment books I don't believe are much more correct than my memory because they only go by the statement that the farmers themselves are giving to the assessor. The assessor never goes there and measures up the land that is under cultivation.

Q. If you think you are sufficiently informed you may go on with your statement?

A. I will give it to the best of my knowledge.

Gustav Anderson Back—Southeast quarter of Section 32, about 100 acres under cultivation and fairly good buildings.

J. G. Applegren—Southeast quarter of Section 6—buildings—and about 100 acres under cultivation.

Q. Now that would be very close to this old Mustinka river?

A. Yes sir, the land is just north of it.

Q. About eighty to 100 rods?

876 A. Somewheres along there.

N. O. Araskow—Southwest quarter of Section 12 and Northwest quarter of Section 13—good buildings, and I should say about half of it under cultivation—one quarter section.

Q. Which one?

A. It was partly on both of them.

Adolph E. Carlson—Northwest quarter of Section 17—buildings on it—part under cultivation—I couldn't say just how much.

Q. This land right along the line of this old Mustinka river?

A. Yes sir.

Q. Do you mean in mentioning the names of these different parties that they were people who actually resided upon and cultivated this land in 1896?

A. Those where I said there are buildings, the people lived and occupied the buildings. There is this first description of Alfred Anderon—the Northwest quarter of 13. I understood they had that under contract and he later sold that to Araskow, but that was either in 1895 or 1896, I couldn't say which, when he turned it over to Araskow.

G. A. Carlson—the northwest quarter of Section 8—buildings on and I should judge about half of that land was under cultivation.

Q. Now that was right on the line of the old Mustinka river?

A. Yes.

Andrew Carlson—Southeast quarter of section 8. He had good buildings and about 140 acres under cultivation.

Q. And that also was right on the line of the old Mustinka river?

A. Yes sir.

Mr. Bronson: What do you mean by that—adjacent or
877 contiguous to the line of the river?

Mr. Palmer: I think it was.

A. It is not far away from it. It is close up to it.

Magnus Dahlstrom—Northeast Quarter of Section 18—good buildings and nearly all under cultivation.

H. A. Hawkinson—it was assessed in the name of Ole Johnson, but I think Hawkinson was the owner in 1896 That is right on the bank of Twelve Mile creek in Section 20. It is the West Half of 20. The buildings are on the west side of the river, but most of the land is on the east side of the river. That is the reason why I give it.

Q. That is of Twelve Mile Creek?

A. Yes sir.

Q. Describe the buildings and state of cultivation?

A. Good buildings and in a high state of cultivation with the exception of the east eight acres. It is a strip along the east side, about eighty acres, that was not under cultivation at that time.

Q. Otherwise what was the state of cultivation on the rest of it?

A. In a high state of cultivation, I should say. It is good land, splendid land.

Andrew Jackson—The conditions are the same with him. He had some buildings. That is in 29—the Northwest quarter of Section 29. That quarter was also under cultivation, practically all of it. He had only a granary on that quarter section. His buildings are acrossed Twelve Mile Creek on the west side.

Ellen Johnson—Southwest quarter of 32. A tenant occupied those buildings—fairly good buildings and the land was under cultivation—in a good state of cultivation—about 115 acres.

878 Carl Krenz—Southwest quarter of 8—good buildings and about 120 acres under cultivation, I should judge.

Q. That is right close to this old Mustinka river?

A. Yes sir.

Andrew Lindquist—Northwest quarter of Section 7—good buildings or fairly good buildings—about 100 acres under cultivation.

Q. Now that is right close to the confluence of the old Mustinka river with the Twelve Mile Creek?

A. A little to the northeast.

Charley Larson—Southeast quarter of 2—buildings—and about eighty acres under cultivation.

S. J. Lind—a fellow by the name of West and he worked that together—two quarter sections of land in there—Northwest quarter of 2 and Northwest quarter of 12. There was buildings on both those quarters. They were not so very good on one of them, but the other one had pretty fair buildings. The quarter of Section 12 had fairly good buildings.

Q. How much land under cultivation on these quarters?

A. I couldn't say for sure. They hauled in considerable grain to me at Norcross and when it comes down to the cultivation I wouldn't swear to the amount. This is approximately—what I give you here. I wouldn't swear that they are correct—but it is approximate.

Q. And based in part upon the quantity of grain they hauled to market?

A. Yes, I bought from them in 1896—1895, 1896 and 1897. I bought from them all those years.

Jonas Larson—Northwest quarter of Section 10. He had fairly good buildings and about 70 acres under cultivation.

Christian Nelson—Northwest quarter of 34. They had
879 I would say a good set of buildings and about 110 acres under cultivation.

Aaron Nord—Southeast quarter of 10. He had some buildings there and about half of it under cultivation. I think it was the south half. The rest of it was hay land and pasture and so on. When I drove along the road there I drove up to his buildings, and I knew him very well, and I saw he was plowing his field east and west along the road, so I think it was the south half.

Berndt Nelson—Southeast quarter of 26. He and also his son, M. W. Nelson, owned the Northwest quarter of 26 and kind of worked those two together, and there they had a splendid set of buildings on the Southeast quarter of 26, and all of it under cultivation with the exception of the grove.

Q. And how about the Northwest quarter of 26?

A. There was a part of the Northwest under cultivation. He proved that up as a tree claim.

D. G. Newman—He farmed but he assisted his father Fred Newman in farming, and then they worked some other land, but I don't know if they worked any land in 1896.

Q. Except their home farm?

A. Yes, sir.

Q. Where was the home farm?

A. Lots 1 to 12. I guess there are some lots in there they didn't own, but it is practically all from Lot 1 to 12.

Q. What section?

A. Section 7.

Q. Which part of the section?

A. West part of the section.

Q. That is right at the confluence of the old Mustinka river
880 with Twelve Mile Creek?

A. Yes, sir.

Q. And how near is that confluence to their house?

A. About eight rods from the house.

Q. And what have they there around the confluence?

A. It is a grove—planted trees. Then they have a good set of buildings and mostly all of the land under cultivation.

Q. Now 1896 and prior years I am asking you about, you understand in all of this?

A. Yes, sir. Of course now they have buildings fit for a prince, but they had good buildings at that time. I couldn't say just exactly how much of their land was under cultivation, but they hauled considerable grain to me at Norcross, I would judge anyway half of it was under cultivation in 1896.

Q. You understand, Mr. Ringdahl, that on all of this I am asking you about 1896 and the years immediately preceding it?

A. Yes, sir.

Mr. R. Nelson—Northeast quarter of Section 7—just a strip of that was under cultivation—no buildings.

Q. How much would you say?

A. Forty acres.

Nels Nelson—southeast Quarter of 18, Northeast quarter of the northeast quarter, Southwest quarter of the northeast quarter, Northwest quarter of Northeast quarter, southeast quarter of the northeast quarter and the northeast of the southeast quarter—that is all in Section 20. His buildings are on the southeast quarter of 18. He had good buildings and had 200 acres under cultivation.

William Nordeen—West half of 28, Northwest quarter of 33,—good set of buildings, about two hundred acres under cultiva-
881 tion. Now I might state that he had two sons that stayed with him and they worked some lands outside of these that they farmed independently for themselves, at the same time that they helped the old man at home.

Olaf Olson—Northeast quarter of Section 26—good buildings, about 100 acres under cultivation.

John Peterson—Northeast quarter of 32, good buildings, about 120 acres under cultivation.

Rosencranz Porter—Southeast quarter of 36. He had some buildings on there, but I don't remember how good they were, and he had about eighty acres under cultivation at that time.

William Rosen—Southeast quarter of 29—fairly good set of buildings—115 or 120 acres under cultivation.

Frank Satter—North half of Section 24. He had a pretty good set of buildings—about 120 acres under cultivation.

Q. The old Mustinka river runs right through that?

A. Yes, sir.

C. E. Shroeder—Southeast quarter of 14—eighty acres under cultivation and fair set of buildings.

Eric Satterlund—Lot 4, Section 5.

Q. Which part of the section would that be?

A. Lot 4, I think, is on the west side—northwest corner of it. He had some buildings there. I never was up to his house but he had home buildings. I saw them from the road, and he had some under cultivation. I couldn't say just how much.

Q. Did he haul grain to you?

A. Yes, sir, he did.

Q. In the year 1896?

A. Yes, sir, I used to get grain both before and after that time from him.

882 P. T. Stromberg—Lots 15, 16 and 17, Section 6—fairly good set of buildings and about 100 acres under cultivation.

Q. Which side of the section would that be on?

A. The north half and the southeast quarter of the southeast quarter.

C. L. Swanson—Southwest of 34—fairly good set of buildings and about 100 acres under cultivation.

Andrew Wiman—Southwest quarter of 2—about eighty acres under cultivation—fairly good set of buildings.

John Youngberg—Southwest quarter of Section 14—85 acres under cultivation and small buildings. They were not very good.

Q. That was right on the line of this old Mustinka river.

A. Yes, sir, on the north side of it.

Walfred Hawkinson—Northeast quarter of 16—fairly good buildings, about 100 acres under cultivation.

Q. That was also right on the line of this old Mustinka river?

A. Yes, sir.

Q. Do you know the quality of the crops raised by Mr. Hawkinson there at that time?

A. The crops in there has averaged about 10 to 14 bushels to the acre.

Q. Of wheat?

A. Yes, sir. Of course in 1895 it went way above that, but that was above the average.

Q. What did it go in 1895?

A. Twenty, twenty-five, thirty and thirty-five bushels.

Q. Of wheat to the acre?

A. Yes, sir.

883 Q. Now when you say an average of ten to fourteen bushels per acre as an average crop, do you mean in the year 1896 and the years prior thereto?

A. Prior thereto and from that on to the present date.

Erick Hanson—He was a tenant on Section 25—southwest quarter—good set of buildings—about 110 acres under cultivation.

John Harberg—He also was a rentor and lived in Section 28. The buildings there wasn't very good.

Q. What part of Section 28?

A. Close to the school house there on the east line of 28.

Q. Right next to Five Mile Creek?

A. Yes, close up to it. It is at or near the southeast corner of section 28. I couldn't say if the buildings were on the east or west side of the road. I think they were on the west side. I judge about eighty acres was under cultivation.

G. A. Erlenson—Northeast quarter of 34—fairly good set of buildings—about 120 acres under cultivation, a big grove there.

Otto Engstrom—East half Northeast quarter and Northeast quarter or the Southwest quarter of Section 16—good set of buildings and practically all under cultivation.

Q. That was right on the line of this old Mustinka river?

A. Yes, sir, he was a very good farmer, one of the best ones we had.

Q. That was right on the line of this old Mustinka river?
A. Yes, sir.
We had another man there by the name of Louis Benson. He was a tenant, but I couldn't say just what land he lived on, but he hauled some grain to me at Norcross. I knew him well, but I couldn't tell what land he lived on?
Q. Could you say in what vicinity he lived?
884 A. He lived in the northern portion, in or near Engstrom's.
Q. Where was Engstrom's?
A. In 16.
Q. Now was there anybody else in Redpath township that you think of?
A. The tax list shows several other persons that were paying taxes, but I don't know them all——

Mr. Bronson: Objected to as hearsay and move to strike out that testimony.

A. I knew them when I saw them, but that was all. I am giving you those that I knew now.

Now comes Clifton Township, Township 127, Range 45.

B. Ashbaugh, F. Ashbaugh and B. J. Ashbaugh. It is the old man and two sons and the two sons farmed land independently for themselves part of the time, and part of the time they stayed and worked for the old man. They worked the Northwest quarter of Section 20, and the Northwest quarter of 28. The northeast of 20 had good buildings on, and I should judge about 125 acres under cultivation.
Q. How about the Northwest 28?
A. Part of that was under cultivation, but I couldn't say as to the buildings on that.
John P. Asplund—Southeast quarter of 8—he had good buildings—about 120 acres under cultivation—very good farmer.
Christ Amundson—Northeast of 32. He had good buildings and about 115 or 120 acres under cultivation.
Mangus Aekeson—He was a tenant in Section 15—I think it was the North half of 15—on one of those quarters. I knew the man,
but I couldn't say just—there was a good set of buildings—I
885 could't say as to the cultivation. He hauled some grain to me and there must have been about 100 acres under cultivation on that quarter section. I think he lived on the Northwest quarter of 15. I couldn't say for sure. Those tenants came in one year, you know, and then went another year.
William Berg, Jr.—Southeast quarter of 32 buildings— and I couldn't say just how much of that land was under cultivation.
G. F. Blaisdell—He owned all of Section 31, but he rented it out. It had good buildings and a good portion of it was under cultivation.

Q. Of the whole section?

A. Yes, sir, but I could- say just how much.

Joseph Compton—East half Southeast quarter of 16—practically all of that land was under cultivation with the exception of the grove and the building ground.

Q. What kind of buildings?

A. Pretty fair set of buildings.

John Deal—Section 30—the east portion of Section 30—it is described by lots in there.

Q. You mean east of Twelve Mile Creek?

A. Yes, sir.

Q. What lots does he own there?

A. I couldn't say for sure what lots there are. I have one on the east half of 30.

Q. East of the river anyhow?

A. East of the river anyhow where he lives there. The river goes in a circle around his buildings on the west side there.

Q. Tell us about his buildings and the condition of the land?

A. The land was under cultivation and he had a fairly good set of buildings.

886 Q. As I understand it his buildings were situated west of the river?

A. No sir.

Q. East of the river?

A. Yes sir.

E. J. Erickson—Northeast quarter of 4—he was one of the oldest settlers in that community. Good set of buildings and all under cultivation with the exception of a small pasture and building grounds.

Q. That is in 1896 and years prior thereto?

A. Yes. He hauled in a lot of grain to me, that man. They worked some other lands besides this quarter section, but I couldn't give that.

Peter Warhelm—this land was in the name of Hudson, but Warhelm owned it under contract at the time—fairly good set of buildings. Part of that is in the Delta zone and part out. That is the Southeast of 6, Township 127, Range 45. That land was in a high state of cultivation.

Peter Engstrom—Northwest quarter of Section 2—splendid buildings, and about 100 acres under cultivation. Now Peter Erickson Warhelm and his son owned another quarter section of land that they worked at the same time—that is the Northeast quarter of Section 18. Part of that is on the West side of Twelve Mile Creek and part of it on the east side—about half and half. Small set of buildings on the east side of the river. I should judge about half of it or more was under cultivation.

Ed J. Fortune—Southwest quarter of 8—good buildings, and biggest part of it under cultivation.

Hannah Fortune and Oliver Fortune, her husband—Southeast quarter of 14—good set of buildings and all of it or practically all of it under cultivation.

887 There was a tenant that lived on and worked Section 28. His name was J. Hoerlyck. I think it was the northern portion of that section. I couldn't say for sure. I couldn't answer that question, but I know that he lived on that section. Buildings on it. I don't know as to how much was under cultivation, but this man rented it so it must have been a portion of it under cultivation.

Q. Did he haul grain to you?

A. I think he hauled one or two loads to me, and that is about all he did haul to me. His market was otherwise Herman.

E. Hixon—all of Section 21—buildings on the Northeast quarter of the section, and the old man Hixon was up and he and the boy worked the land part of the time; otherwise the boy looked after it, but the old man stayed up there part of the time.

Q. What was the condition of those buildings?

A. The first set of buildings I don't remember much about, but in a year or two later they built up a good set of buildings on there. They had some buildings there in the first place.

Q. How much under cultivation?

A. I couldn't state that. I should judge about half of it—about three hundred acres or so—was under cultivation.

Gust Gein—Northeast quarter of 10—fairly good set of buildings—110 acres under cultivation. There was also a tenant in there by the name of J. W. Garl. He worked some land in or near this section 10, but I couldn't give it any more particularly than that. I think it was quarter section. He hauled some grain to me in that year, but I couldn't say just exactly what land. It is the old McClymonds farm.

Q. What is that?

888 A. There was practically three or four sections in that farm. Old man McClymond was up there part of the time and then he had a fellow by the name of Sylvester Johnson who operated it at that time.

Q. What sections were those?

A. 10, 11, 12 and part of Sections 1 and 2, I think. There was about four sections in there, three and a half or four.

Q. Did that come down to the Herman road, that McClymond farm?

A. I am not positive if it went down to the Herman road, but I know it was a mile north of the Herman road. Here I have it. It is all of Sections 13 and 11, and the East Half and the Southeast quarter of the Northwest quarter, and the North half of the Northwest quarter of Section 12; and the North Half and the Southeast quarter of the Southeast quarter, and the South half of the Northeast quarter and Lots 1 and 2 of Section 12.

Q. That was all one farm?

A. Yes sir. Two sets of large buildings—one house there that must have had about twenty rooms in it, and the other buildings were for the management.

Q. Large barns?

A. Oh monstrous barns.

Q. And granaries?
A. Yes sir.
Q. And cattle shed?
A. Cattle barns and cattle sheds of all descriptions.
Q. A large, prosperous place?
A. Yes sir.
Q. What was the condition of cultivation of the land?
A. It was in a high state of cultivation.
Q. How much of the two sections?
A. I think about two sections was under cultivation at that time.
Q. What was the quality of crops that they raised?
889 A. Good crops.
Q. Did they market them to you?
A. I bought one year.
Q. Which year was that?
A. I think it was in 1896.
Q. What was the quality of the grain?
A. Oh, it was all No. 1 those days.
Q. What kind?
A. No. 1 Northern wheat.
Otto Johnson—he was a tenant on this Blaisdel farm.
Q. What section was that on?
A. That is also on Section—I haven't got the description here.
Q. Section 31 you stated before was the Blaisdel farm?
A. I think he worked part of Section 31 and part of 29.
Q. Were there buildings there?
A. As far as I know there was some buildings. I tell you that is in the extreme southern portion of this Delta zone and I wasn't so familiar with that as I was with the northern and eastern and central portion of it.
Q. The market place, I apprehend, of the parties living in the southern portion would be either Wheaton or Herman?
A. Wheaton or Herman—Herman mostly.
Ferdinand Krenz—he hauled considerable grain to me—East half of Section 7—good set of buildings—a large portion of that land under cultivation. I don't know just how much.
William McGin—Southwest quarter of 22—he had some buildings and about half of it under cultivation.
Andrew Mork—he had a contract for the southeast of 27—buildings on and about half of that land under cultivation.
John Nelson—southeast quarter of 4—good buildings and
890 nearly all of that quarter under cultivation. This man also owned one quarter acrossed the road there in Section 9. I think, that he worked at the same time.
Q. Now this land that he farmed in Section 9, do you know anything about the condition of cultivation?
A. It was under cultivation, a considerable portion of it. That man always raised big crops, and I bought his grain that he raised during those years from 1893 to 1900.
Gust Olson owned the Northwest quarter of Section 14—fairly good buildings, about 100 acres under cultivation. These buildings

that year was occupied by a tenant, as he himself studied for a minister.

John P. Olson—Northeast quarter of 22—good set of buildings, about 100 acres under cultivation.

Hans Pramhus was a tenant and living on Section 29. I couldn't say as to what portion of 29, as that was rather remote. But I know that he lived there. There was also another tenant on Section 28, on the Northeast quarter of 28, by the name of H. Randall, but I couldn't say as to the buildings and cultivation of that either. It was rather remote.

Q. Well, did these tenants cultivate those farms and gain their livelihood there?

A. Same as the owners themselves would have done if they lived on the land. They worked it and made their living from it.

E. D. Rogers—Southwest quarter of 15 and the West half of 22—good set of buildings—about half of that land was under cultivation in 1896.

Q. How long had Mr. Rogers lived there?

A. He is one of the oldest farmers—good farmer—made money there—he is rich. He came there I thin- in 1882 or '3.

891 Q. Is he still living there?

A. Yes sir.

Luke Rowan—Northwest quarter of 34—good buildings and most of the land in a good state of cultivation. I couldn't say how much was under cultivation on that farm, but I know he was a good farmer.

Humphrey H. Smith—he owned the west half of 26—buildings and part of that land was under cultivation, but how much I couldn't say.

T. O. Torgerson—Southeast of 18—good set of buildings, most all under cultivation—good farmer—made himself rich.

Silas Torgerson—he was a tenant and lived on the southwest quarter of 4.

Q. Were there buildings there?

A. Yes sir.

Q. Land in a state of cultivation?

A. Yes sir.

Q. This tenant made his livelihood there?

A. Yes sir, hauled in his grain to me and he had some good grain—wheat and oats that he raised on that farm. It is a good farm.

William Tripp—was a tenant in the souther- portion of this so-called Delta zone, but what quarter section he rented I am not able to state, but I knew he lived there and made his living by farming.

Q. Did he haul grain to you?

A. No, he didn't. I just saw him several times.

David Tripp—he and his wife—the land belonged to the wife—southwest quarter of 34—fairly good buildings about 100 acres under cultivation.

892 Peter Thieman—he was also a tenant in the southern

portion of that Delta zone, but what quarter section he worked I couldn't say, but I know that he lived there.

Q. And was a farmer there?

A. Yes sir.

J. K. Van Doren and Mrs. Hobbs—she was his mother-in-law and the land was in her name. Well, the land really belonged to Mr. Van Doren. That is all of Section 5—good set of buildings and practically all of that section under cultivation with the exception of some hay land on the southern portion of it.

Paul Walker and Anna Walker—they owned the Northwest quarter of Section 24. They were old-timers—good buildings and nearly all under cultivation.

Charles Walker—that is a son of the old man—he worked some land near there. He stayed with the old man but he worked some land outside of their own.

Q. In this Delta zone, so-called?

A. Yes sir, the Northwest quarter of 24.

Q. Are they still living there—those Walkers?

A. Yes sir.

Charles Warhelm—Southeast quarter of section 20. He had a small set of buildings there and about sixty acres under cultivation.

Carl Wiberk—North half of the Southeast quarter of 15—fairly good set of buildings and every foot under cultivation with the exception of the building land.

Herman Beveire—Southeast quarter of Section 9—part of that was under cultivation and I think there was a granary on that land. I don't think there was any other buildings on it, at least I never saw any.

893 James Waters—Southwest quarter of 9—small buildings —about 100 acres under cultivation.

Martin Monsen and Sarah Monsen, his wife—I guess the land was in his wife's name—Northwest of 32—no buildings but about 100 acres under cultivation.

Charley Cater—he owned the southwest quarter of Section 14—good buildings on there and nearly all under cultivation.

Q. Is he still there?

A. He still owns that farm. I think it is in his wife's name: Township 129, Range 45.

Q. That is the Township of Tintah?

A. Yes sir.

Gust Ahlsten—Southwest of 20—fairly good buildings and about eighty acres under cultivation.

James Denery—East half of 20—fairly good set of buildings, and I couldn't say as to the cultivation. That is getting to the extreme northern portion of this Delta zone. He hauled some grain to me, but I couldn't say.

Ida M. Putnam and her husband—they owned all of Section 21. It was under cultivation, and I think there was some buildings on it, but the land was rented. It belonged to that big Tintah farm.

Q. It was all under cultivation?

A. No, I don't know if it was all under cultivation, but I think part of it was or a great portion of it was under cultivation.

Charles H. Streeter—Southwest quarter of 22—buildings and the biggest portion of it under cultivation.

John A. Davidson—Southwest quarter of 26—buildings and about 100 acres under cultivation.

John Johnson—southwest quarter of 26—buildings—
894 about 110 acres under cultivation.

Robert H. Cross—all of Section 29—there were some buildings on there, and part of it under cultivation. I couldn't say how much, but it was rented out to a man by the name of McCauley, I think.

John Ahlsten also owned the Northeast quarter of the Northeast quarter of 30. Part of that land was under cultivation. No buildings.

Sven Nelson—East half of Northeast quarter and Southwest quarter of Northeast quarter of Section 30—buildings—and part under cultivation, I couldn't say how much.

E. Rosenberg—Lot 1, Section 30—fairly good buildings—part of it under cultivation.

Q. Which part of the section would that be?

A. Northwest quarter of the Northwest quarter—buildings on there and part of it under cultivation—not very much though. It is the northwestern portion comes close to what we call the Tintah slough. The judicial ditch is on the east side of it.

Gust Davidson—Northwest of 32—good buildings—about 100 acres under cultivation.

James J. Johnson—Southeast quarter of 32—some buildings—I couldn't say how good they were—and part of that land under cultivation. I couldn't say how much.

Alfred Nelson—Southwest quarter of 32—buildings—about eighty acres under cultivation.

William E. Kelly—Northeast of 34—this land had some buildings on and some of it was under cultivation. It was rented out as Kelly lived in the cities. I think he lived in Minneapolis.

John Davidson—Northwest of 34—good set of buildings,
895 about 100 acres under cultivation.

H. B. Carey—Northeast quarter of 36. This land I think had some buildings on and part of the land was under cultivation, but it was rented. That is to the extreme north end of the Delta zone, and I am not so familiar as I have stated before with it.

Edwin Chell—northwest of 26—fairly good set of buildings, about 110 acres under cultivation.

Monsen Township—Township 128, Range 46:

E. G. Holmstrom, Southeast quarter of Section 1—an old timer—splendid buildings—farm was in a high state of cultivation.

Q. In the Township of Gorton, Grant County, Township 128, Range 44, in the area that is within this so-called Delta zone?

A. Now I have not checked up the quarter sections that these farmers lived on in Grant County, except that I know them by name. There are nine farmers living in that portion of the Delta zone in Gorton Township. They lived west of Norcross, south and southwest of there. I can give you the names of them.

Q. What sections did they live on? First, Mr. Ringdahl, this township of Gorton is the one in which the Village of Norcross is situated?

A. Yes.

Q. And can you tell us the sections on which these nine farmers lived?

A. Yes, I think I can approximately do it. I couldn't swear that they would be identically correct, so I want that understood.

896 Q. Give it the very best you can from your recollection?

A. On the Northeast quarter of Section 32 that land was worked by a man by the name of Kenyon. I don't remember now his initials. That quarter had buildings. It was under cultivation—I think about eighty or ninety acres under cultivation at that time.

Olaf Gronseth—he owned the quarter east of that—the Southeast of 32. He had a good granary there and a small barn, and about ninety acres under cultivation. I was with him there several times and we hunted on his land.

Q. And west of there on 32?

A. A fellow by the name of Carl Nelson lived there. He had a good set of buildings, and I should say about 75 or 80 acres under cultivation. Now, I couldn't say, but in or about that time, in or about 1896 a fellow by the name of C. J. Johnson from Oskaloosa, Iowa came in and located on the South half of 29, put up a good set of buildings and broke practically all of that half section, anyway, the southwest quarter, I would say. He sold it a few years afterward, but some other people are living there now.

Rasmus Winter—he lived on the East half of 31 about 200 acres of that half section under cultivation, with a fairly good set of buildings.

On the southeast quarter of Section 30 a fellow by the name of Andrew Peterson lived. He homesteaded that eighty acre tract there, and he had all of it under cultivation and a small set of buildings that him and his wife lived in. And the north portion, or at or near the northwest corner of Section 30 was a set of buildings that was occupied by Andy Porter and his father, and they had a pretty good set of buildings—about eighty or ninety acres under cultivation.

Then there is old man Zekora. I think his initial is "C." He lived I think in Section 35, the western portion of Section 35. He

897 had a small house and about fifty acres under cultivation.

Q. North or south part of the west portion?

A. I think it was the south part of that quarter that he lived on, but he moved away from there; and then there was Billy Klair. He lived there in that same section or near that section, I couldn't tell exactly, but he lived in that zone anyway. He owned a quarter section of land—had a fair set of buildings and was a good farmer.

Q. Raise good crops?

A. Yes, raised fairly good crops. He was more of a stock raiser than a grain raiser. I think that is all I can just think of now.

Q. In that township?

A. Yes sir.

Q. Now going south into Township 127 of range 44, the town of Logan, Grant county. Can you tell us anything about that?

A. There was one man that lived acrossed the river east from Paul Walker by the name of——

Q. Acrossed Five Mile Creek you mean?

A. Yes.

Q. And which farm was it that Paul Walker lived on?

A. Northwest of 24.

Q. That would be in Section 19 of Logan Township?

A. It is on the east side—just acrossed the bridge of Five Mile Creek there. His name was Hoilasek. I knew him.

Q. He had a good farm?

A. Good farm and raised good crops, but that is on the beach there,—it is not in that low land. You know there is a raise from Five Mile Creek up. I want to correct that. I think it is in the Northwest quarter of Section 19 that he had his buildings.

Q. That is in the town of Logan?

A. Yes sir.

898 Q. Now can you speak of other settlers north of him in 7 and 8 and 5 and 6?

A. There was a fellow by the name of Martin that lived there and farmed. I was down to his house in 1895. His name was Joe Martin, I think. He had a good set of buildings and about 110 acres of his land was under cultivation. He lived in or near there. I couldn't say just what section.

Q. Was it in this area marked in the Delta zone?

A. Yes.

Q. Do you mean in or near the location of Section 5 or Section 19?

A. No, it is in that Delta zone, in or near Section 17.

Q. Now that makes, Mr. Ringdahl, actual settlers and farmers, how many?

A. Now that is about 125.

Q. You have got more than that?

A. There was about six settlers in the Township of Logan in this Delta zone.

Q. That you haven't named?

A. I have named only two of them.

Q. And that makes 125 about that you have named?

A. Yes, just about 125 that I can state that lived in there that I know. I don't want to state any more than I really knew.

Q. Would you say that all told there were as many as 130 settlers in there?

A. Might have been 130 or more, but these what I have given you, I knew them.

Q. What can you say of the quality of the crops raised by those settlers whom you have enumerated and who lived in this Delta zone in the year 1896 and prior thereto?

A. The quality has been good as far as I have known it and seen it.

899 Q. What can you say of these farms that you have enumerated in this Delta zone, so-called, as compared with the other agricultural communities in Traverse county and in that locality generally?

A. It compares very well with the rest of it. I would say it is just as good in there as in other township- in the county probably.

Mr. Bronson: When, in 1896?

A. Yes sir. The township of Clifton has always been considered one of our best townships in Traverse county.

By Mr. Palmer:

Q. What do you mean by that Mr. Ringdahl?

A. We have good soil. The top soil is a black loam with clay subsoil; the land has good drainage to the west and northwesterly and they always raised good crops.

Q. Good class of farmers?

A. Yes, sir, good class of farmers as anywhere else.

Q. The majority of them owned the farms on which they lived?

A. I think they do.

Q. Well, at that time I am speaking of?

A. Yes, they did—pardon me—I want to state here that in the early years many of these people that I have named here did not have title to their lands, but they either held them by equity through contract from the railroad company or else upon a homestead entry.

Q. And what was the condition of those farmers as to prosperity?

A. Good as far as I knew them.

Q. Did they pay their bills?

A. They always paid me what I had coming.

Q. Well, generally speaking, were they a prosperous, well-conditioned set of farmers, or were they poor and impoverished by crop failures or things of that kind?

A. No, they were financially well-to-do. Fairly well-to-do.

900 Q. Now you have heard the testimony of Dean Shenehon here that the largest part of this so-called Delta zone must have been, prior to the construction of this first Mustinka ditch at least, submerged with water?

Mr. Bronson: Objected to as improperly stating the testimony, incorrectly stating it, and asking for a conclusion of the witness, and in part asking for opinion testimony and not based upon a statement of facts from the witness himself.

A. That is not so.

Q. Now as to the loans on these lands that you have described here, Mr. Ringdahl, can you tell us something about the different farms on which you made loans and the size of the loans, the loans that were made either by yourself or others?

A. I made a loan——

Mr. Bronson: Object to this line of testimony as having no probative effect, not the best evidence, not within any issues involved in this case or tending to prove any of the same, and simply encumbering the record.

Q. Have you made a memorandum?

A. I can remember a few.

Q. Give the year in which you made the loan?

A. I think it was in the year 1915 I made a loan to John Simon on the Southwest quarter of Section 4, Township 127, Range 45, of Four Thousand Dollars,——

Mr. Bronson: Complainant moves to strike out the answer of the witness on the ground of the objection stated and for the reason it is not the best evidence and the answer plainly is based upon evidence that is of record and is the best evidence, and it is incompetent, irrelevant and immaterial, and simply encumbering this record.

Q. A first mortgage?

901 A. Yes sir, and I also negotiated a second mortgage for Thirty-two Hundred Dollars, making a total of $7,200 on the quarter section.

Mr. Bronson: Same motion.

Q. Was that loan at all disproportionate to the value of the land according to the proportion that is usually loaned upon farms in that locality?

Mr. Bronson: That is objected to upon the ground that it calls for opinion evidence, no foundation laid, and incompetent and immaterial, and simply serves to encumber this record, having no probative force or effect upon the issues involved herein.

A. The first four thousand was.

Q. By disproportionate, I mean was it out of proportion to the usual loan?

Mr. Bronson: Same objection.

A. The $7,200 was out of proportion, but the $4,000—I mean the two together were out of proportion but the first loan of $4,000 was based on forty per cent of the actual value of the land.

Mr. Bronson: Move to strike out the answer as not responsive to the question.

Q. How did those farms that you have enumerated here compare in value in 1896 with the other agricultural lands in Traverse county and in that locality generally—were they worth more or less or the same?

A. About the same.

Q. Can you mention other loans that you made on these lands which you have described?

Mr. Bronson: Same objection as heretofore urged.

A. I made a loan of $3,700 to John P. Asplund. I think that is the Southeast of Section 8, if I ain't mistaken, Clifton Township.

Q. How much?

A. $3,700.

902 Q. First mortgage?

A. Yes sir.

Q. When?

A. Last year, and year before.I made it in two loans, but it is to

the same company, so they are considered as one, you understand, It can't exceed forty per cent.

Q. Did you make some loans in the year 1896 and the years prior thereto?

A. 1896—no sir.

Q. What was the quality and character of the farm buildings upon these farms in 1896, and fences and other farm improvements upon these farms as compared with the other farms in Traverse county?

A. Compared pretty well with the other farms in the county.

Q. It has been testified here by Geo. A. Ralph that this Five Mile Creek for some five or six miles above its confluence with the old Mustinka river was overflowed a considerable portion of the year, the lands on either side resembling a lake surface, the greater portion, in appearance. Do you know anything about that, Mr. Ringdahl?

A. I never saw it overflow that much, but I have seen it when it has been a hundred feet wide from Section 34 down to its outlet.

Q. What section 34?

A. Or from the north line of Section 34, I will put it, Township 128, Range 45.

Q. How frequently have you seen it 100 feet wide?

A. I have seen it in 1916, and I saw it in 1915.

Q. But speaking of the times prior to the construction of this ditch, Mr. Ringdahl, did you ever see it that wide?

A. Yes.

Q. What years are those?

A. I saw it in 1897.

Q. What other year, if any?

A. I think I saw it in June, 1907.

903 Q. Did you ever know of it overflooding any more than to this width of 100 feet?

A. I never saw it overflowed upstream from there in Traverse county.

Q. At to no greater extent than 100 feet through this locality you have mentioned?

A. It might have been 200 feet on some places. I couldn't say.

Q. What year was that?

A. That is in those years. It spreads out a little in the low places.

Q. Now he testifies that upstream clear down to where the Five Mile Creek enters this so-called Delta zone it overflowed and flooded the lands along its banks. What can you say about that?

A. I never saw it overflow in that region.

Q. Did you ever hear of it overflowing in that locality?

A. No sir, the banks are well defined. The channel is well defined in there.

Q. Always has been?

A. Yes sir, always, I think.

Q. Now he testifies that Twelve Mile Creek would overflow its banks and flood a portion of this Delta zone. What is there to that?

A. I never saw Twelve Mile Creek overflow, and I don't think anybody else ever seen it overflow from Section 18 as far south as Section 32.

Q. Section 18, what township and range?
A. Township 128, Range 45, upstream to Section 32, and I couldn't say south of there for sure.
Q. Section 32 what?
A. Township 127, Range 45. If it flooded south of there east of Dumont I couldn't say that for sure, because I never saw it.
Q. But you say it didn't overflow from Section 18?
A. Section 18 and upstream.
904 Q. Upstream to Section 32?
A. Section 32, Doleymount Township, I will put it.
Q. Northerly of Section 18 did it overflow?
A. It did.
Q. In what direction and when and where?
A. It overflowed north over Section 1.
Q. In Monsen Township?
A. In Monsen Township, and it also overflowed at the north line of Section 18 west of it, across that bend there.
Q. If it overflowed westerly acrossed the bend, do you mean that this water would pass over and join the river again on its turn south?
A. Yes, it would.
Q. Now what times have you seen this overflow of the Twelve Mile Creek in Sections 18 and 1?
A. I never saw it overflow. I have only seen the after-effects of the flood. I never was there at the crest of the flood.
Q. Has there been at times some amount of surface water on this area in this so-called Delta zone?
A. Not that I know of, or have seen, with the exception of in the spring when the snow melts. There is always a lot of water then in the ponds or in the lower places and close to groves, but it is that way on all the lands.
Q. I wish you would make a comparison between the amount of surface waters on these lands in this so-called Delta zone and the other agricultural lands in Traverse county?

Mr. Bronson: Objected to as not calling for a statement of facts known to the witness from actual observation of the territory involved, and calling for a mere conclusion.

A. No difference whatever.
Q. I assume, of course, Mr. Ringdahl, that you are fa-
905 miliar with the conditions, generally, of all of the agricultural lands in Traverse county?
A. Yes sir, I know all the lands well. Been all over Traverse county time and time again.
Q. And do you yourself own some land in this so-called Delta zone?
A. Yes sir.
Q. When did you first buy any land in there and what land did you buy?
A. I think it was in the year of 1908 I bought the Southwest quarter of Section 10, Township 128, Range 45, and had that about a year and resold it again. And I also owned the Southeast quarter of Section 15-127-45. I bought part of it in 1903 and part of it a few years later.
Q. You own that farm yet?

A. Yes sir.
Q. Have you a tenant on it?
A. Yes sir.
Q. Do you own any other lands in this so-called Delta zone?
A. No, but I own close up to it on the west side.
Q. What is that?
A. I own the Southeast quarter of 30-128-45, and the Southeast quarter of 24-127-46.
Q. Are these all improved farms?
A. Yes sir, good improvements.
Q. How long have you owned these last two farms that you speak of?
A. One about not quite a year.
Q Which one?
A. The southeast quarter of 24, and the other one about seven or eight years.
Q. Have you observed lands in this so-called Delta zone so that you are able to state when the greatest amount of surface water was upon these lands—what year?
906 A. In 1916.
Q. Was the greatest amount?
A. Yes sir.
Q. It has been stated here, Mr. Ringdahl, by the witness Ralph that this ditch, this Mustinka ditch drained those lands in the so-called Delta zone, and that they were comparatively dry in the season of 1916—what can you say about that?
A. I can't see it that way. That it isn't so.
Q. And you say that there was in fact more surface water upon these lands in the season of 1916 than at any other time that you ever observed them?
A. I would include 1915 also, but 1916 was the most.
Q. And was 1915 the year in which you saw the greatest amount except the year 1916?
A. Yes.
Q. What was the condition in this so-called Delta zone in the year 1915?
A. Got about half a crop.
Q. Why?
A. On account of rain, too much rain.
Q. And too much water upon the land?
A. Yes sir.
Q. In 1916, what will you say?
A. No crop whatever.
Q. Why. I wouldn't say whatever—some of them had a little corn.
Q. But practically a crop failure in 1916?
A. I would call it a total crop failure. We never had anything like it.
Q. On what account?
A. On account of rain.
Q. How much? How much water upon the land?

907 A. A great deal.

Q. What can you say as to whether that same condition prevailed generally throughout Traverse county and the whole surrounding country in that year of 1916?

A. The same condition prevailed practically over the entire area of Traverse county with the exception of the high hills on the east side of Traverse Lake. There they got a little corn and three or four bushels of wheat to the acre, and about eight or ten bushels of oats to the acre.

Q. And in 1915?

A. 1915 in the area described we had about half a crop.

Q. And in Traverse county generally what can you say?

A. Now on those high hills at the lake they had a little better crop than we had out east. They always do in wet seasons.

Q. And apart from this, what would you say as to the rest of the county, comparing it with this so-called Delta zone area?

A. About the same. Got about half a crop.

(Adjournment taken until 10 a. m., September 27, 1916.)

September 27, 1917, 10 a. m.

Hearing resumed pursuant to adjournment with all parties present.

Direct-examination of William Ringdahl resumed.

By Mr. Palmer:

Q. Continuing along the line of the crops on this so-called Delta area, what can you say as to the crop of 1914?

A. I should say that we had two-thirds of a crop.

Q. What can you say as to how that compared with the crops generally in Traverse county and in the territory surrounding it?

A. About the same—same proportion.

908 Q. What was the cause of the reduction in the crop in 1914?

A. Heavy rainfall.

Q. And whether that condition obtained generally throughout Traverse county and the surrounding territory?

A. It did.

Q. What will you say as to the year 1913, Mr. Ringdahl?

A. We had an average crop.

Q. And as to the rainfall of that year?

A. If I remember right we had an average rainfall.

Q. And in 1912?

A. We had a good crop in 1912.

Q. What was the rainfall, taking it on an average that year?

A. I should say an average rainfall.

Q. And without going any further back, how much greater than

the average, speaking from the standpoint of a layman rather than an expert, will you say that the rainfall of 1914 was?

A. Now I went to Europe on the 3rd day of April and returned about the 1st day of July, 1914, and coming home—when I got home the crops was suffering from too much rainfall, from too much water.

Q. The crops were suffering from too much rainfall?

A. Yes sir.

Q. And throughout the balance of that season and from then on I assume you remained at Wheaton?

A. I remained at home at Wheaton, yes.

Q. Well, now what can you say about the increase over the average in the rainfall that year?

A. We had considerable rainfall through the fall of 1914, and in the spring of 1915 it started to rain again and kept on, I would say, through the entire summer season of 1915 above the average—a great deal above the average, and then in the fall and winter of 1915 and 1916 we had considerable snow.

Q. Above the average would you say?

A. I would say about the average.

909 Q. In the spring of 1916 it started to rain again?

A. Yes sir, and it kept on raining, I don't know just how many days. During the months of April, May and June it rained, but the biggest portion of it was there one month that I think it rained in Wheaton twenty-six days. That is, it rained off and on during that time, and the consequence was that everything was drowned out. We didn't get any crop in 1916.

Q. I will ask you how that year of 1916 compared with other years as to rainfall during the time of your residence in that locality?

A. You mean those three years?

Q. Yes.

A. They were abnormal. I never saw anything like it.

Q. That is 1914, 1915 and 1916?

A. Yes sir, those three years.

Q. And as to the state of water on the land in Traverse county, generally, and the surrounding territory throughout the season of 1916 compared with other years?

A. It was soaked clear down to the subsoil so it was nothing but mush, the whole thing.

Q. Had you ever had, during your knowledge of that country, any such experience before?

A. Never.

Q. Or any condition approaching that of 1916?

A. Not that I can remember.

Q. Now was that condition confined to this Delta area, Mr. Ringdahl?

A. Not only to the Delta zone but to the entire Traverse county.

Q. And take the adjoining counties—Wilkin county?

A. Same thing up there.

Q. Grant county?

A. Same thing there.

Q. Stevens county?

910 A. I never was down into Stevens county those years, but Bigstone county was the same. I was in Bigstone county.

Q. Were you down around Donnelly and those places?

A. No, but I was at Clifton and Ortonville and Graceville.

Q. What did you find the condition there that year?

A. Very wet.

Q. As wet as Traverse county or this Delta zone?

A. Yes, they didn't get any crop to speak of. Once in a while a farmer got a few patches of grain and some of them got a little corn.

Q. What lands were those?

A. They were on higher lands.

Q. Now take over in North and South Dakota, the region adjacent to your territory. Do you know the condition of the crops there in 1916?

A. They didn't get much of a crop.

Q. Did they get any more of a crop than they did on the Minnesota side?

A. I think they did. I think they did get a little more. Those that threshed on the Minnesota side, that had high lands, they got all the way from three to five or six bushels to the acre of wheat and those parties that threshed on the west side got about five or six bushels.

Q. What is their average yield over there, if you know?

A. Oh, there was a number of farmers that didn't thresh, didn't even cut, but those that did cut and those that did thresh got about five or six bushels.

Q. Do you know what their normal average yield is on the Dakota side?

A. About fourteen bushels to the acre.

Q. Now when you speak of fourteen bushels to the acre or

911 five or six bushels to the acre do you mean wheat?

A. Yes.

Q. What is the principal crop through all that section?

A. It is wheat, oats and barley. Wheat is the principal crop.

Q. Usually of what quality?

A. A pretty good quality.

Q. What number?

A. No. 1.

Q. No. 1 Northern?

A. No. 1 and No. 2 Northern.

Q. Now those lands over on the Dakota side in 1916, did you see them?

A. I saw part of them.

Q. In what county?

A. In Roberts county.

Q. South Dakota?

A. Yes sir.

Q. That is the county immediately west acrossed the lake from Traverse county?

A. Yes sir.

Q. And what other county?

A. I didn't see any other.

Q. Did you go up into Richland county, North Dakota?

A. I don't believe I was up in Richland county that I can remember.

Q. What was the condition of the lands as to water in Roberts county, South Dakota that year—1916—as you observed them?

A. Wet.

Q. As wet as those in Minnesota?

A. No, the lands in Roberts county are more rolling and for that reason the water runs off and into the lower places, the depressions in the land and over through the coulees that lead to Traverse Lake.

912 Q. Do I understand that the water runs off more rapidly from those lands over there than on the Minnesota side?

A. My impression is that it would.

Q. In these years of 1914, 1915 and 1916, I will ask you as to the quantity of surface waters on the lands in this so-called Delta zone as compared with surface water on the other lands in Traverse county generally?

A. It was about the same, except as I have stated before that on higher land the water ran off and into the low pockets.

Q. But the condition of Traverse county in general, the topographical condition, by which I mean the surface of it—what is it, level or rolling?

A. The eastern portion is level with a slope to the west and northwest of all the way from three to five feet.

Q. To the mile?

A. Yes sir. The western portion of it I would say is a little rolling.

Q. Where?

A. Along the lake and through the Township of Walls, and the western portion of the town of Monsen, and also the township of Folsom and Windsor and Arthur.

Q. That is the land along next to Traverse Lake and the Bois de Sioux river?

A. Yes sir.

Q. Is rolling?

A. Yes sir.

Q. How about the town of Taylor?

A. The western portion of it slopes to the west.

Q. What is its condition as to being level or rolling?

A. The eastern portion of it is level. The western portion of it slopes to the west more than the eastern portion does.

Q. Now take the townships north of there in Wilkin county, the town of Campbell for instance, describe that?

913 A. Level land, practically, the same as the eastern portion of Traverse.

Q. The town of Brandrup, Wilkins county, right north of Campbell?

A. That is level.

Q. Very similar in character?
A. Yes sir, it is about the same kind of land.
Q. And the town of Champion?
A. That is east of there?
Q. Yes.
A. That is level land.
Q. Same general character as the eastern portion of Traverse county?
A. About the same.
Q. The town of Lawrence in Grant county east from Champion?
A. The biggest portion of that township there is a level township. The northeastern portion of it, and probably a strip of land on the eastern portion is a little bit undulating.
Q. Otherwise is it the same general character as the lands in Traverse county?
A. Yes sir. The land west of Wendell and south of Wendell and over there in towards Norcross is very flat and level.
Q. Now the town of Tintah in Traverse county?
A. That is a flat, level township.
Q. As much so, so far as the eye can observe at least as the towns of Redpath and Clifton in Traverse county?
A. Yes sir, but Clifton, I would say, is a trifle higher of the three. It is a better township in my opinion all through and through.
Q. On account of what?
A. On account of being a little bit higher.
Q. That is, it is higher than Redpath or Tintah?
A. Yes sir. Of course there is a big portion of Redpath that is pretty high too.
Q. Which portion?
914 A. The southern portion and western portion—the western portion along the river.
Q. You mean Twelve Mile Creek?
A. Yes sir.
Q. I will ask you about the town of North Ottawa?
A. That is the town we just mentioned between Norcross and Hereford. It is a level flat township.
Q. As much so as this town of Tintah or Redpath in Traverse county?
A. About the same.
Q. The town of Gorton?
A. That is also a level country with the exception that a sand ridge is running through at Norcross and runs in a northeasterly direction towards Wendell; otherwise it is a level township.
Q. I wish you would make a general comparison between the lands in this town of Gorton, Grant county, and the lands in Redpath, Traverse county?
A. About the same.
Q. Now the town of Logan in Grant county?
A. It is similar to Gorton township.
Q. Compare it with the town of Clifton?
A. Clifton is the better township of the two.

Q. Why?

A. Because the land on the east side of the gravel ridge that runs through Section 19, that is the same ridge I was speaking of that runs through Norcross—on the east side the land is very flat and it hasn't got the slope that the town of Clifton and the Town of Redpath has.

Q. Now the town of Eldorado in Grant county?

A. I have been in the western portion of that township.

Q. What can you say as to that?

A. Now what I saw of it was the same sand ridge that ran
915 through that township from the south to the north line of it, and I saw a number of depressions in the ground—sloughs, as I would call them, and higher lands. It is more rolling than either Logan or Clifton. That is the part that I saw was.

Q. The town of Doleymount in Traverse county?

A. That is a level township with a slope to the northwest from three to four feet to the mile.

Q. Compare it with Clifton?

A. About the same. I call the township of Clifton though a little better than the town of Doleymount.

Q. Why?

A. It is better soil and more farmers in there.

Q. How about the drainage?

A. Now the township of Clifton has very good drainage.

Q. Naturally?

A. It had some to the northwest through two or three coulees running through there, besides Five and Ten Mile creeks, and then all these ditches afterward that helped to drain that township.

Q. Makes it a very well improved township?

A. It is a very good township. There is no question about that.

Q. Speak of the township of Lake Valley, Mr. Ringdahl?

A. The eastern portion of the Township of Lake Valley is——

Q. You mean next to the lake?

A. No, I would say the East Lake Valley.

Q. The eastern portion of East Lake Valley?

A. East Lake Valley—that would be Township 127, Range 46, that is practically a level township. The western portion of it, or West Lake Valley is also level, but it has quite a number of coulees and the Mustinka river running through it, and it has good
916 drainage to the west and southwest, and is one of the best townships we have. Wheaton is in that township.

Q. Compare the eastern portion of it with Clifton?

A. The same. If anything Clifton would be a little better. Fully as good anyway.

Q. The township of Croke?

A. It is a level township.

Q. Compare it with Clifton?

A. I always considered Clifton better than Croke.

Q. Why?

A. Because it has better land—raise better crops.

Q. On what account?

A. On account, as I stated before, pretty fair drainage and a good township straight through and through.

Q. Has Croke township good drainage?

A. It hasn't got as good drainage as Clifton.

Q. Has it got as good as Redpath?

A. It will have after these ditches go in there. Yes, I think it is about the same as Redpath.

Q. Are you familiar with the town of Leonardsville, Traverse county?

A. It is a level township, sloping to the northwest. I don't know just how much.

Q. Compare it with Clifton?

A. About the same kind of a township, maybe a trifle better than Clifton.

Q. The town of Tarrah?

A. Tarrah is a level township. It ain't as good as Leonardsville.

Q. The drainage?

A. I would say it ain't as good as Clifton.

Q. In the matter of drainage you mean?

A. Yes, I mean in a general way.

917 Q. Flat?

A. Yes, sir. It hasn't got the slope to the surface.

Q. Parnell?

A. Parnell is a good township. It is a little bit rolling. Part of it is level and part of it is rolling.

Q. Now some of these townships down in Bigstone—the town of Moonshine?

A. That is at Johnson station and in there.

Q. Tell me about Moonshine?

A. That is the township east of Graceville?

Q. Yes.

A. Where Johnson is located?

Q. That is correct.

A. It is a level township.

Q. Compare it with the town of Clifton?

A. Now the surface of the Township of Clifton, I believe, is a little more level than the surface of the lands in Moonshine, but as far as I know now the township of Clifton is a better township, than the township of Moonshine. It has better soil and better drainage. I am not so well acquainted with the township of Moonshine. I have went through there several times.

Q. What about the number of sloughs?

A. Quite a number of sloughs in there—a lot of sloughs.

Q. Graceville township?

A. I am not so well acquainted with Graceville township. I have been west of Graceville and I have been south of Graceville. It is quite a number of small lakes and sloughs in there and it is good farming land in between.

Q. Now when you say you have been to the west and south of Graceville, you mean the village of Graceville?

A. Yes, sir.

918 Q. Do you know anything about the township of Tokua?

A. I couldn't say much about that. I have been through there and that is about all. Part of it is level. Tokua township is somewhat similar to Parnell.

Q. I think you have spoken of the townships of Arthur, Folsom, Windsor and Walls, as being somewhat rolling?

A. Yes sir.

Q. Having perhaps better natural drainage?

A. I think they have. The water will drain into these lower depressions in the lands coulees.

Q. Mr. Ringdahl before this case did you ever hear of such a thing as a Delta zone in these townships of Clifton and Redpath, a portion of Tintah, and portions of Logan and Gorton?

A. I never did before until in the summer of 1917.

Q. And from where then did you hear of it?

A. When this case commenced.

Q. The bill of complaint in this case?

A. Yes, sir.

Q. Was the first you ever heard of it?

A. Yes, sir.

Q. Mr. Ringdhl, have you been familiar, ever since your settlement at Norcross, with the land values in Traverse county, and the surrounding counties?

A. I think I have.

Q. Have you dealt more or less in real estate?

A. Not very much in real estate. I have been dealing in loans more than in selling lands.

Q. I take it that that made you familiar with the values then of lands in that locality?

A. Yes, sir.

Q. Now what will you say as to the value of lands in this so-called Delta zone or area in 1896 and the years prior thereto

919 as compared with the other lands in Traverse county and the surrounding counties?

Mr. Pinkney: Objected to as wholly incompetent and immaterial; not tending to prove any issues in this case.

Mr. Bronson: And calling for a conclusion of the witness and not for actual knowledge.

A. Compared pretty well. You know locations, distances from towns or villages rather have a great deal to do with land values.

Q. But I want to direct your attention particularly to the question of whether these lands were of less value by reason of their being flooded or having any more surface water upon them than other lands in the county and in the surrounding territory?

Mr. Pinkney: Objected to as incompetent and immaterial.

A. They were not.

Q. They were not of any less value would you say?

A. No sir—except I would insert there a few sections in the Township of Redpath and also a few sections in the Township of Tintah.

Q. Now those sections that you refer to in the town of Redpath that were of less value on account of water, by what name was that particular locality known?

A. As the Redpath sloughs and the Tintah sloughs.

Q. Now the Redpath sloughs—will you kindly give me a description of the lands that were called the Redpath sloughs?

A. The eastern portion of section 21.

Q. Now this is in the town of Redpath, Township 128, Range 45?

A. Yes sir. Section 22.

Q. By that do you mean all of 22?

A. I would say all of 22 and the north half of 23; a little portion on the west of 24, and also the south half of 13 and 14.

Q. You mean all of 14?

920 A. No, the south half. It would be hardly all of the south half either. There was two farmers living on the South half of 14 but by this I mean that they are flooded, and in a high stage of water a portion of those lands were flooded—not all of it, you understand, but I cannot give any line drawn acrossed there that will indicate the exact boundary at this time so I give it in general. And then a portion of the south end of 15 and 16.

Q. You mean all of 16?

A. No, just a portion of the southern part of it, probably about eighty acres in there.

Q. Eighty acres in each?

A. No, I think 15 is more, practically half of 15, the south half of 15. It narrows to the west and is wider in the center and narrows to the east.

Q. About how large an area have you in mind—the number of sections.

A. In or about three sections and a half.

Q. Now was there any more than that three sections and a half that was covered with water or might be called a slough or a swamp, Mr. Ringdahl?

A. No sir, not that I know of. There was a little land along the Five Mile Creek in Section 28 that used to overflow at high stages of water.

Q. How many acres?

A. I should judge about 200 acres or something like that, but that was only for a brief period.

Q. Well, now, these Redpath sloughs, describe their condition in general from year to year?

A. They are low and practically level, and water stands in them in wet seasons. In dry seasons they are always dry, and it

921 grows a lot of weeds and cat-tails and brush on some places, and they are generally used for pasture and hay land.

Q. Well, in dry seasons, what will you say as to the portion that can be cut for hay?

A. In dry seasons all of it can be cut for hay.

Q. Has that always been true even before this ditch was put in?

A. Yes sir, it has, with the exception of maybe a few acres here and there, you know.

Q. Now in wet seasons for how long a time would there be water standing upon the lands?

A. In 1916 and 1915 the water stood over that land through the whole season, through all of those two seasons.

Q. That was after this ditch was put in?

A. Yes sir.

Q. Well, didn't this Mustinka state ditch drain this area in the Redpath sloughs?

A. No sir. It drained them to a certain extent in the first place, but the water will stand there just the same now when the ditch overflows and the land is flooded so it can't run into the ditch even if the water in the ditch goes down.

Q. I wish you would compare the quantity of water standing on those lands in the years 1915 and 1916 with prior years, Mr. Ringdahl?

A. There was just as much water in 1915 and 1916 as I ever saw there.

Q. And did it stay just as long?

A. Stayed the whole season.

Q. Did you ever know it to stand there the entire season before, since you have known those lands?

A. I think there was one or two seasons that I saw the
922 water stand there, but about eighteen or twenty years ago.

Mr. Bronson: Are you talking about the Delta zone?

A. The Redpath sloughs in the delta zone.

Q. The Redpath sloughs alone?

A. Yes sir, those sections mentioned.

By Mr. Palmer:

Q. Now what is the character of the soil in those Redpath sloughs, is it swampy, or is it about the same general quality as the surrounding land?

A. The soil is good. It is a loam soil.

Q. What I mean by that, does it contain peet or muskeg as we call it?

A. Oh, no.

Q. Now the Tintah slough—tell us where that is and its extent, Mr. Ringdahl, please?

A. The Tintah slough takes in the western portion of Section 30 and the eastern portion of Section 19, the southeast portion of Section 18, and the western portion of Section 17, and a little portion of the southeast corner of Section 8, all in township 129, range 45.

Q. Being the Township of Tintah?

A. Yes sir.

Q. About how much in area?

A. I should judge about two sections and a half.

Q. Now describe that Tintah slough—are you familiar with it so that you can describe it?

A. Yes sir.

Q. At the present time and in the past?

A. Both at present and also in the past. It compares pretty well with the Redpath sloughs, but the Tintah slough has a slope to the north. It also extends—pardon me—I forgot that—I just looked at this township—it extends into Section 1 in the township
923 of Monsen.

Q. How much of Section 1?

A. It takes in a portion in the center from the north to south—about fifty acres I should say.

Q. Now you say it compares pretty well with the Redpath sloughs. Do you mean it is similar in character?

A. Similar in character, yes.

Q. And has that area been cultivated in the Tintah slough?

A. It has been cultivated in dry seasons pretty well down to the center of the slough, but in wet seasons they cannot cultivate it. They have been cutting some hay in there.

Q. How about cutting hay on it?

A. They have been cutting some hay there.

Q. All of it?

A. All of it in seasons like 1917—all of it has been cut. But in a season like 1916 I doubt if any of it was cut.

Q. Did you see it in 1916?

A. Yes sir.

Q. Water standing there?

A. Yes sir.

Q. How long?

A. It stood there all summer.

Q. Did you ever see the water stand there before all summer?

A. Yes, I have before that ditch was constructed. I saw it stand there all season.

Q. Now I was going to ask you about that ditch—what drainage ditch is it that drains the Tintah slough?

A. I think it is Judicial Ditch No. 3.

Q. By whom was that put in—what county?

A. By Traverse county in conjunction with Wilkin county.

924 Q. That is by the district court of the two counties?

A. Yes sir.

Q. When was that ditch put in or when was it constructed?

A. I wonder if it wasn't in 1908 or 1909.

Q. It says 1910 here?

A. Probably it was completed in 1910.

Q. I wish you would just describe that ditch for me?

A. It starts at or near the southwest corner of section 30, and runs in a northerly direction for about forty or fifty rods, then in a northeasterly direction to the northeast corner of section 19, and then northerly on the section line between sections 18 and 17 and 7 and 8, 6 and 5, Township of Tintah, 129, Range 45, and then it runs north into Wilkin county about a quarter of a mile between Sections 31 and 32.

Q. Of Champion Township?
A. Yes sir.
Q. And outlets in what?
A. Into the Rabbit river.
Q. Now you say that was put in in 1910, or completed in 1910?
A. Completed—it started before that.
Q. What was the size of that ditch?
A. I wasn't on that committee that checked that up. I think it is an eight or ten foot bottom. The southern portion of it I think is five or six feet deep with a top width of twenty-four feet. The northern portion of it runs through higher lands on the east side of those sections mentioned and so it has to be considerably deeper towards the north.
Q. Has it always been of that same size since it was constructed?
A. As far as I know it has.
Q. And do you know in a general way whether that ditch has drained this water out of this Tintah slough in ordinary
925 times?
A. It has to a certain extent, but it hasn't drained the lower pot-holes.
Q. Well now is that all of the area, Mr. Ringdahl, in this socalled Delta zone that you know of that is at times submerged by water and that the water stands on?
A. That is all.
Q. Or ever did stand on, is that right?
A. Yes sir.
Q. Do you recall the time of the construction of the first section of the Mustinka state ditch?
A. Yes sir.
Q. You were then living at Norcross, I believe?
A. Yes sir.
Q. Did you have anything to do with the laying out or constructing of that ditch, Mr. Ringdahl—of that first section?
A. Nothing except that I secured a few quit-claim deeds for the state of Minnesota.
Q. For the right-of-way?
A.. For the right-of-way for that ditch.
Q. Now in what years was it constructed?
A. In 1894. I think, however, that there was a portion of it in the east end that was left and afterwards constructed in 1896, about a half a mile of it.
Q. Well, according to your best recollection where did the part constructed first start?
A. I think somewheres in the center of section 24. I think it was in the eastern portion of Section 24.
Q. What town?
A. I think that portion was dug in 1896, that is east of the Traverse county line. I wouldn't swear to that, though, but there
926 is a part of it——
Q. And you think the first section began near the eastern line of Traverse county?

A. Yes sir, somewheres in there.
Q. That would be Section 24 in Township of Redpath?
A. Yes sir.
Q. And extending in what direction?
A. You mean the ditch?
Q. Yes.
A. In an easterly direction and westerly direction from the east line of Section 24.
Q. You mean westerly direction?
A. Well, part of it is in an easterly direction in Grant county.
Q. I mean the first part?
A. Well, that was in a westerly direction to Twelve Mile Creek.
Q. As indicated here upon the map, Defendant's Exhibit No. 7?
A. Yes sir.
Q. Did you observe the effect of this first section of the ditch on the lands through which it passed, particularly these Redpath sloughs, when it was put through there?
A. It drained those lower pot-holes that it passed through.
Q. How did it affect the areas away from the ditch?
A. I don't see how it could have any effect upon it at all.
Q. Well, how far to the north or south did it affect the drainage?
A. Up to a mile on either side I would say.
Q. Throughout the eastern portion of that first part of the ditch, by which I mean the portion passing through these Redpath sloughs, and in Section 19 and 20 of the town of Gorton in Grant county, what was the direction of the movement of the surface waters
927 in the early break-up in the spring, if you know, Mr. Ringdahl?
A. It was in a westerly and northwesterly course.
Q. What effect did the construction of the first section of this ditch have on the movement of the surface waters there and their flow at the time of the spring break-up?
A. You mean the flood?
Q. Yes?
A. Of course it handled all the water it would hold, and the rest would overflow and run to the north and northwesterly.
Q. The same as it did before?
A. In high stages of flood, I suppose, it would do that.
Q. Well have you any reason to know that particularly from your own experience?
A. Only except in the spring of 1897.
Q. Well what was that spring as to its condition in regard to floods?
A. We had a heavy snow the winter before and it broke up suddenly in the spring and these water courses were all flooded. They were filled with ice and snow and the water spread all over the country.
Q. I asked you if you had in your own experience any particular knowledge of the flow of those waters to the north and west?
A. Now my impression was that it ran to the northwest.
Q. Why?

A. Yes sir. They made several cut-offs in through that region and the old river channel was considerably deeper and wider than it was farther up, but I never saw any rim in there or ridge as I suppose you mean.

Q. Well, do you know why the operations were suspended on the 29th of July, 1914?

A. On account of not having sufficient money.

Q. The whole $35,000 appropriation was gone at that time as you understood it?

A. Yes sir.

Q. Then was there a further appropriation made in 1915 by the legislature?

A. $5,000 as I understand it.

Q. And when was work resumed then?

A. It commenced July 3rd, 1915, and took up to November 4, 1915, and then quit.

933 Q. And that was the final outlet where they stopped?
A. Station 799.

Mr. Pinkney: That Lake Traverse:

A. No, it is about two miles above Lake Traverse

By Mr. Palmer:

Q. And about how far below Wheaton?

A. About four miles and a half below the Chicago and Milwaukee Railroad bridge.

Q. How far did they dig in 1915?

A. From this place where they stopped in the fall of 1914 down to the outlet, just about two miles.

Q. And that included going around some bends of the river, did it?

A. Yes, sir.

Q. Mr. Ringdahl, so far as bringing down the water from any part of this area, we will say northerly and easterly of this line of railway of the Chicago, Milwaukee and St. Paul Railway Company, I will ask you if that ditch was complete, I will say, by June 1, 1914?

A. No, sir, the ditch was not complete in 1914.

Q. I mean so far as bringing down any water, if it did bring down any water from that territory northeasterly of the Milwaukee Railroad?

A. There wasn't any water to be brought down because they had just about enough water to carry the dredge and that was all. All the time when they were digging down the river there they had to raise the dirt from in front of them in order to get enough water to carry them down the river.

20, 1913, and dug up to December 4, 1913, and dug down to what we call the F. W. Murphy farm, three-fourths of a mile
931 Northwest of Wheaton.

Q. What is this Murphy farm—can you give the description of it?

A. It lays about a half a mile below the railroad bridge.

Q. That is what we call the Milwaukee Railroad Bridge, northwest of Wheaton?

A. Yes sir.

Q. About how many miles would that be?

A. You mean that they dug in the year 1913?

Q. Yes.

A. About eight miles.

Q. How far below the railroad bridge did they go in 1913?

A. About half a mile.

Q. What was the date on which they went under the railroad bridge, dug out the channel under the railroad bridge?

A. November 16, 1913.

Q. Now tell us about 1914?

A. They started work—I wouldn't say the exact date there—about April 1, 1914, as that was the time when I went to Europe, you see, and they dug up to July 29, 1914, and ended on the western portion of Section 23.

Q. What town and range?

A. 127, Range 47.

Q. How far below the railroad bridge did they dig up to July 29, 1914?

A. About three miles.

Q. What date did you go to Europe?

A. On the 3rd day of April.

Q. Had they started work then?

A. Yes, they started work then. They started one or two days before I went.

Q. And what was the date of your return?

A. I think it was July 1st or July 2nd.

932 Q. Where were they then when you came back? About how far below the railroad bridge?

A. They were close to where—within a half a mile of where they quit. About two miles and a half below the railroad bridge.

Q. Is there a place there where the valley narrowed up slightly, Mr. Ringdahl, about two miles or two miles and a half below the railroad bridge?

A. Not that I have seen.

Q. Did you ever observe any such place there?

A. No sir, I have not.

Q. Did you ever observe anything like a rim acrossed the valley and the river about two miles and a half below the railroad bridge?

A. I have not.

Q. Were you there while they were digging this ditch?

Mr. Pinkney: They had to dam the stream to force the water up?

A. They dug and they made a kind of dam in front of the dipper.

934 By Mr. Palmer:

Q. And that served to float the dredge?

A. Yes, sir, they had to watch that very carefully so the water wouldn't run away from the dredge.

Q. You returned about the 1st of July?

A. 1914.

Q. Was it just the 1st of July?

A. It was either the 1st or the 2nd.

Q. Now were there any unusual floods of water there at that time?

A. There was considerable water at that time running in the river.

Q. On your return did you see evidences of any unusual amount of water going down the river?

A. It was considerable water then in the river.

Q. And so far as that water running down the ditch was concerned from all this area in northwest of Wheaton—was that ditch just as complete then as it was when you got down to finish the outlet, if it was to bring down any water?

A. No, it wasn't.

Q. What remained to be done?

A. To make one or two cut-offs and also to deepen the channel along the Mustinka river.

Q. Was the water backed up above the dredge there on the 1st of July to flood the surrounding lands or lands along the river?

A. No, it didn't back up very much. It ran on both sides of the dredge.

Q. Did it all get past the dredge or substantially all of it?

A. Yes, sir.

Q. Or did it spread out and form a lake above?

A. No, sir, it ran on the side of the dredge where it stood in
935 the river.

Q. And went down to Traverse Lake?

A. Yes, sir.

Q. And was there in the month of—we will say along the 1st of July—was there any water backed up or flooding any of the lands above the dredge by the waters spreading out of the river over on them in 1914?

A. I think the river was pretty well down when I saw it. It ran over its banks, but it wasn't as wide as it generally used to be.

Q. The Mustinka river?

A. Yes, sir. It wasn't but several hundred feet wide anyway.

Q. Whereabouts?

A. Northeast of Wheaton.

Q. It was carrying considerable water?
A. Considerable water, yes, sir.
Q. Was that water all confined in the channel.
A. No, sir, it wasn't.
Q. I mean that summer of 1914? At the time you returned July 1st?
A. I think it spread out a little there at one time—that the channel couldn't handle it, but most of it ran in the channel.
Q. Did it remain on the lands to any extent?
A. No.
Q. Never damaged the crops or injured the lands
A. Now it soaked the land the same as it always did when the water ran over it.
Q. Now was that a backing up from the dredge being in the river, Mr. Ringdahl?
A. I don't think so. I am not positive. I couldn't answer that question.
Q. Now were you furnished with the plans and specifications giving the size of this second section of the ditch which
936 you say you checked up and measured?
A. Yes, sir.
Q. By whom?
A. By Mr. Ralph, State Drainage Engineer, and by Mr. Willard in the year- 1914 and 1915.
Q. 1914 and 1915 by Mr. Willard?
A. Yes, sir.
Q. And when the construction of the ditch first began by Mr. Ralph?
A. Yes, sir.
Q. Have you those figures that were furnished you by him?
A. I have.
Q. Will you produce them?
A. Yes, sir.
Q. I wish you would state first, Mr. Ringdahl, just how they started that work there at the cut-off beginning at the cut-off with this dredge?
A. They started right in line with the old cut-off of Section 1 of this Mustinka ditch and then they made a dike on the upper side and the lower side.
Q. Of what?
A. Acrossed the Mustinka river.
Q. Of Twelve Mile Creek?
A. Twelve Mile Creek—I don't know. I call it sometimes the Mustinka river in there.
Q. But it is what has been called here Twelve Mile Creek?
A. Yes, sir, and they dammed up the water in this channel so as to get enough to float the dredge across the country, and the consequence was that the water on the south side of this dike went way up for about five or six miles.

Q. What year?

937 A. 1912.

Q. Now it has been testified here by Mr. Ralph that that cut-off, which would be the first two miles or two and a half of this second part of the ditch, was seventy-five feet wide and twelve feet deep? I wish you would give from the figures furnished you by him the width of that cut-off beginning at Station O?

A. Yes, sir, Station O—1 foot cut.

Q. One foot deep?

A. Yes one foot deep. It is marked cut here.

Q. Does that mean depth?

A. Yes, sir, that means down.

Q. Then give the depth and width at the top?

A. Bottom width is 30 ft. three feet from the bottom up. The ditch had a concave bottom, so three feet from the bottom up it had a cross area of 30 feet.

Q. And the width which you now give is the top width?

A. Yes, sir.

Q. Now Station O is?

A. One foot cut, top thirty feet.

Q. Now that Station O was what?

A. Station O is just the beginning. That is right in the edge of Twelve Mile Creek.

Q. Practically in the Twelve Mile Creek?

A. Right in the Twelve Mile Creek.

Q. So the real cut begins at Station 1, does it?

A. Yes, sir. Station 1—7 foot depth and it looks like a 4.

Q. 7.4 feet?

A. Yes, sir. 38.2 feet top.

Q. 38.2 top width you mean?

A. Yes, sir. Station 2—7.9 feet depth, 41.8 feet top width.

938 Mr. Bronson: Is that three feet from the bottom?

A. No, that means that the lowest portion of the bottom up to the level of the ground.

By Mr. Palmer:

Q. You may give the width and depth now and we will take the bottom figures later.

A. Station 3—9.4 feet depth, 42.8 feet top width; Station 4, 10 feet deep, 44 feet top width.

Q. What is the length of these stations?

A. 100 feet.

Q. Numbered down stream?

A. Yes, sir.

Q. Station 5?

A. 9.9 feet depth, 43.8 feet top width.

Q. Now instead of reading all of those Mr. Ringdahl, skip five stations?

A. Station 10—is 10.1 feet depth, 44.2 feet top width; Station 15—9.9 feet depth, 43.8 feet top width; Station 20—11 feet depth, 46 feet top width; Station 25—10.2 feet depth, 44.4 feet top width; Station 30—10.8 feet depth, 45.6 top width.

Q. Now skip ten stations?

A. Station 40—10.9 feet depth, 45.8 feet top width; Station 50—11.4 feet depth, 46.8 feet top width; Station 60—9.7 feet depth, 43.4 feet top width; Station 70—9.2 feet depth, 42.4 feet top width; Station 80, 8.9 feet depth, 41.8 feet top width; Station 90—8.2 feet depth, 40.4 top width; Station 100—8.2 feet depth, 40.4 feet top width; Station 110—8.4 feet depth, 40.8 feet top width; Station 120—9 feet depth, 42 feet top width; Station 130—7 feet depth, 38 feet top width.

Q. How many more stations are there?

939 A. Two more.

Q. Only two more in the cut-off portion?

A. Yes, sir.

Q. Station 132?

A. 7.8 feet depth, 39.6 feet top width.

Q. That completes the cut-off portion?

A. Yes, sir.

Mr. Bronson: What book are you reading from?

A. This is the first book that Mr. Ralph sent me in the fall of 1912.

Q. What kind of a book do you call it?

A. I call it a memorandum book.

Q. Any special name for it among engineers.

A. It is a field note book.

By Mr. Palmer:

Q. It is the field note book by which the ditch was constructed?

A. It is a copy of the field note book as I understand it.

Q. It is the memorandum by which you checked up the ditch?

A. Yes, sir.

Q. Did you make this copy?

A. No, it was sent me by Mr. Ralph.

Q. You didn't make those figures?

A. No, sir, the book as it is here was mailed to me by Mr. Ralph.

Q. When?

A. In the fall of 1912.

Q. Before the ditch was constructed?

A. Yes, sir, before the ditch was started.

Q. Mr. Ringdahl, have you made a computation of the average top width of that cut-off from these figures?

A. I have.

Q. What was the average top width?

940 A. 43.83 feet, as near as you can get it.

Q. Now what was the average depth—have you made a computation of that?

A. 9.42 feet.

Q. And was the ditch constructed—the cut-off ditch constructed in accordance with those figures?

A. Yes, sir.

(Adjournment taken until 1:30 p. m.)